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THE JOURNAL OF THE AMERICAN MEDICAL PROFESSION

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Volume LXI, No. 8

AUG 7 1933

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In This Issue

**Unusually High Cellular Reaction in the
Cerebrospinal Fluid in Brain Tumors**

Harold R. Merwarth, M.D.

**The Place of Psychology and Mental Hygiene
in Medicine**

Frederick L. Patry, M.D.

Lead 4 of the Electrocardiogram

Simon Frucht, M.D.

Bundle Branch Block in Hyperthyroidism

Arthur E. Lamb, B.S., M.D.

Bullet in Heart—Twelve Years Duration

Milton G. Wasch, M.D., and Bernard S. Epstein, M.D.

Prevention in Geriatrics

Malford W. Thewlis, M.D.

Auditory Speech

John A. Glassbury, M.D.

Diagnostic Methods in Allergy

George Flamm, M.D.

Special Article

The New Deal at Saratoga

Cancer

Department Editor: John M. Swan, M.D., F.A.C.P.

Economics

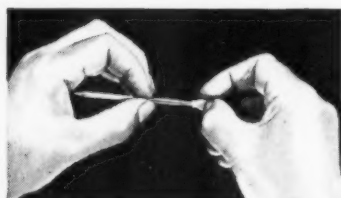
Department Editor: Thomas A. McGoldrick, M.D.

Contemporary Progress

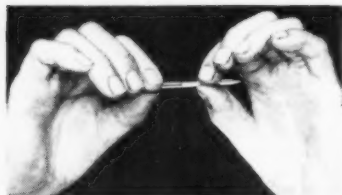
Complete Index to Reading on pages 11, 12

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A Monthly Record of Medicine, Surgery and the Collateral Sciences

Consolidated

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Unusually High Cellular Reaction in the Cerebrospinal Fluid in Brain Tumors

HAROLD R. MERWARTH, M. D.

Brooklyn, N. Y.

CEREBROSPINAL fluids with very high cell counts, xanthochromic-tinged spinal fluids, and genuinely bloody spinal fluids are very uncommon findings in cases of brain tumor. The presence of any one of these abnormal findings during the course of examination is very apt to confuse what otherwise is likely to prove a rather clear clinical picture.

It is generally accepted that in the average run of proven brain tumors there is an increase of the total protein in the cerebrospinal fluid, in association with a normal number of cells, usually below five, and far less frequently below ten cells per cc. If there is any increase of cells, it is slight.

Notwithstanding, instances have been reported where the cell counts in the cerebrospinal fluid have been unusually high. Scharpff⁽¹⁾ reported a case of a tumor of the corpus callosum with a cell count of 250 with 70% polymorphonuclear leucocytes. P. Bassoe⁽²⁾ described a case of a tumor of the fourth ventricle, simulating a meningitis, in which the cell count reached 363 cells with a preponderance of the multinucleated cells.

J. B. Ayer⁽³⁾ in examining 62 fluids from 58 patients found twelve cases with more than five cells, and but six with more than ten cells. The highest counts in each of these six cases were 21, 45, 27, 50, 41 and 18.

Read before the Associated Physicians of Long Island, January 28, 1933.

Ayer postulated that in gliomata, cystic and degenerated, the adjacent subarachnoid space might be the seat of a low-grade inflammatory process.

H. L. Parker⁽⁴⁾ reports a case with progressive cerebral symptoms in which the spinal fluid contained 1600 cells (polys) and 107 lymphocytes. Fluid was opaque, greenish-yellow and frankly purulent. It was caused by a tumor of the left temporal lobe. An area of softening extended into the inferior horn of the left lateral ventricle.

Merritt and Moore⁽⁵⁾ report two excellent cases with high pleocytosis. In the first case, the cell counts reached 2100 and 3000 cells. The reaction was due to a large glioblastoma multiforme which had invaded the corpus callosum from the medial portion of the right frontal lobe and extended into the left frontal lobe.

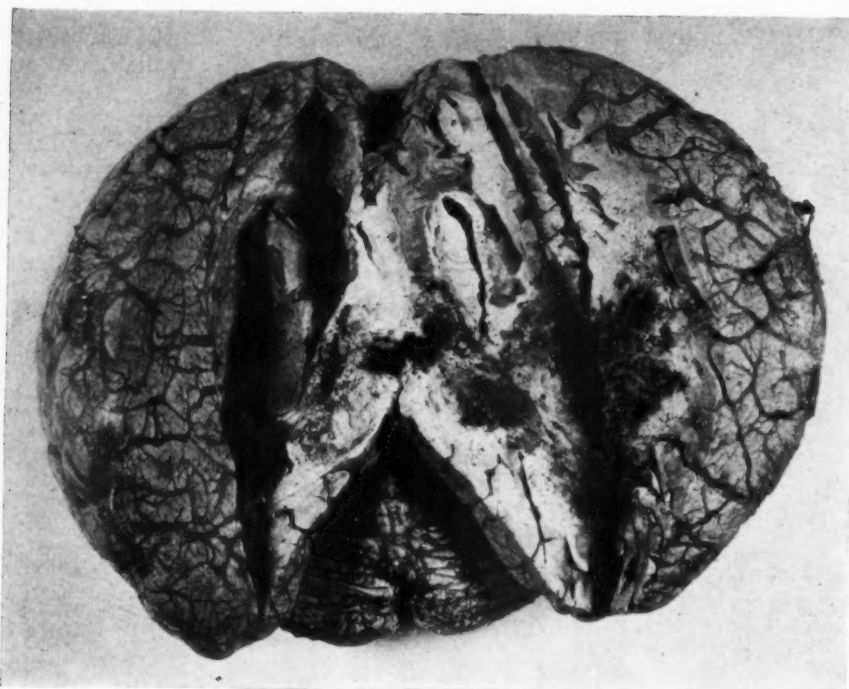
The second case was very remarkable in that the cell count in the cerebrospinal fluid reached the figure of 7200 cells. Counts of 400 to 4800 and 7200 cells were obtained. In this instance, examination at postmortem revealed a glioblastoma multiforme infiltrating the mesial portion of both frontal lobes, involving the corpus callosum and adjacent white matter of both hemispheres.

These authors contend that the most satisfactory explanation of pleocytosis in the cerebrospinal fluid is that it is due to the release of cells into the ventricles or subarachnoid space from the symptomatic inflammation which occurs around an area of tissue degeneration.

According to F. Smith⁽⁶⁾, a degenerating tumor involving the wall of a ventricle may give a cellular increase both in the ventricular and lumbar fluids. Also

she did not seem to be able to sit erect and leaned to the left.

The essentials of her neurological examination performed two days after admission showed—"Patient comatose. Responds to supraorbital pressure and opens her eyes. Protrudes her tongue on request. A



Case 1. No. 35,426. Photograph of Gross Specimen Showing Tumor Invading Corpus Callosum and Both Ventricles.

tumors of the optic chiasm may cause a mononuclear increase of the cells in the lumbar fluid.

It is the feeling of the writer, from a review of the literature of those cases of proven brain tumors with high cell counts in the lumbar fluid, and as a result of three cases to be presented today in my own experience, that when we have an abnormally large increase in the cellular reaction in the spinal fluid the neoplasms are of necessity thrombotic, degenerated and even necrotic and are in very intimate relationship with a ventricular surface.

This first case is of extreme interest because of the extraordinary high cell count present throughout the observed course of her illness. This patient, W. D., age 62, (Hospital number 35426), was admitted to The Brooklyn Hospital October 2, 1929. She was considered always well but of a slightly nervous disposition until about three weeks before her admission to the hospital. At this time she was very restless and could not perform her usual household tasks. It was noted by the family that she had difficulty in writing and was becoming very forgetful. She frequently since her illness had fits of "the blues" and cried without apparent cause.

For three days before admission she had trouble in walking which seemed to become slowly worse. She complained of severe headache in both the frontal and occipital regions and had one vomiting spell. She became drowsy and difficult to arouse. Her mind wandered and, at times, she imagined that "some one was after her." The nurse who admitted her observed that

definite left lower facial weakness and a paresis of the left arm and the left leg with a bilateral extensor toe response were observed. No resistance to forced forward flexion of the neck but a definite resistance to the Kernig test is elicited."

Successive spinal fluid examinations showed the following interesting findings:

October 4, 1929	Cell count 1024 Globulin 4 plus Sugar normal reduction. Smear showed no organisms.
October 5, 1929	Cell count 853, mostly polys. Globulin 2 plus.
October 6, 1929	Cell count 2015. Globulin 2 plus.
October 8, 1929	Cell count 1189, chiefly polys. Globulin 2 plus.
October 11, 1929	Cell count 768. Globulin 2 plus.
October 12, 1929	Cell count 326. Globulin 3 plus.
October 13, 1929	Cell count 256, slight predominance of polys.

On October 17, 1929, fifteen days after admission, in association with the apparent decrease in the cellular reaction in the spinal fluid, there was a distinct improvement in the responses of the patient. For the first time her answers were reliable. At this time she

presented a marked left hemiplegia, a definite left homonymous hemianopia, and a left hemihypesthesia. Up to this time her eye grounds, which were checked by numerous observers and found to be normal, showed a blurring of the left nasal disc margin.

The last spinal puncture was performed October 20, 1929. The cell count could not be performed because of the presence of too many R. B. C.

The condition of the patient rapidly became worse and she lapsed into a deep coma from which she never recovered.

No definite antemortem diagnosis was made. A suspicion of a suppurative encephalitis was entertained. The concept of a brain tumor was ignored because of the unusual spinal fluid findings.

Anatomical findings—Dr. James Denton:

On incising the dura the right half of the cerebrum posteriorly is pale, dry, and the convolutions are markedly flattened. The pial vessels are collapsed and in marked contrast with those of the front part of the hemisphere and of the opposite side. There is no exudate in the pia of either side.

On pulling apart the hemispheres the corpus callosum bulges upward posteriorly.

An incision down through the corpus callosum on the right shows a large softened area 6 cm. in diameter in the substance of the basal ganglia and central portion of the posterior part of the hemisphere. The margins of this area are irregular and dark red in color, the central part semi-fluid and yellowish-pink. Just behind the corpus callosum the softening has extended into the opposite hemisphere.

Histological: Sections of the tumor show it in large part infarcted and necrotic. The vessels of the growth are nearly all filled with recent thrombi. The tumor where well-nourished is made up of small short spindle shaped cells with scanty short fibrillae. The nuclei are large and deep-staining. The tumor cells in places show a tendency to formation of radially arranged bundles which have some appearance of rosettes but no true ones are formed.

Second case—A. M., age 41, W. M. (Hospital number 20435). This patient was admitted to The Brooklyn Hospital Medical Service on November 5, 1928, with a complaint of headache of six weeks' duration and vomiting of three weeks' duration, projectile in character. Associated with the vomiting were attacks of vertigo and also transient spells of loss of consciousness. Just before admission she began to be confused mentally.

At the time of admission she was somewhat drowsy and sluggish mentally but her orientation was good and she cooperated well for the examination.

The essentials of her neural examination were as follows: There was a marked bilateral papilledema. In the Romberg position she swayed to the left; in walking, tended to the left. Distinct awkwardness in using the left hand with diminution of muscle power on the left. Reflex and sensory examination of no localizing value.

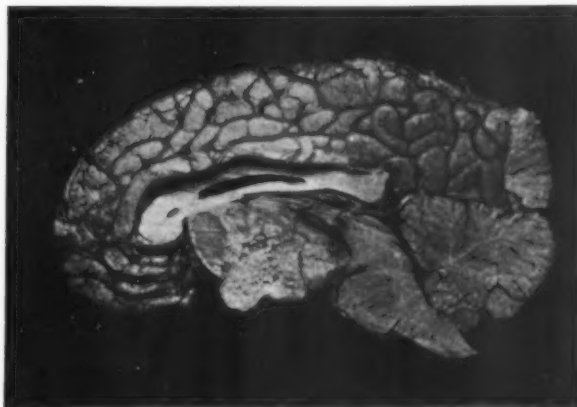
A spinal fluid examination performed nine days after admission revealed 26 cells, globulin 2 plus, and a variation in the colloidal gold curve 2222334420.

On November 17, 1928, a fruitless attempt to puncture the ventricles was made. Accordingly, a corpus callosal opening with drainage was done.

Following the procedure she showed some temporary improvement in her mentality, and some degree of movement returned to the paralyzed left side, but she soon

lapsed into a typical chronic hydrocephalic brain tumor state and died 40 days after the operation.

Gross Post-mortem: The essential gross post-mortem findings of the brain revealed a firm, pinkish tumor in the posterior aspect of the corpus callosum invading



Case 3. No. 721,004. Gross Specimen Showing Tumor of Interpeduncular Space.

the brain substance and ventricular cavities of both hemispheres.

The third case—Mrs. R. P., age 51 (Hospital number 121004), was admitted to the Methodist Episcopal Hospital on October 13, 1927, with a complaint of headaches, blurring of vision and stupor.

In December, 1926 she complained of not seeing well and that headaches to which she had been subject all her life were becoming more frequent and severe. Attacks of projectile vomiting developed early in 1927 and lasted for ten months, when they suddenly ceased. Spells of temporary loss of consciousness occurred in June. Queer talking spells and confusion followed. In September, she became very drowsy and one month later a weakness of the right arm and dragging of the right leg ensued.

The essentials of her neural examination revealed a bilateral optic atrophy, early paralysis of the third nerve with ptosis of the upper lid and a dilated light fixed pupil. The right pupil was also fixed to light.

A right lower facial weakness, weakness of the right arm and leg, with increase of the deep reflexes on the right and an extensor toe response on the right were outstanding.

This is a typical picture of a Weber's syndrome, a third nerve paralysis on the left with a crossed hemiplegia. It became more clearly defined as the third nerve became completely paralyzed.

An examination of the spinal fluid showed:

Wassermann—negative
Cells 600—65% lymphocytes.
Globulin—cloud—3 plus.
C. G. 1111222234.

Six days following the spinal puncture, the patient died of a respiratory paralysis. The antemortem diagnosis of a tumor of the mid-brain was made, with the possibility of a luetic meningitis because of the unusually high cell count with a preponderance of lymphocytes.

Post-mortem showed a huge tumor of the interpeduncular space which had invaded the hypothalamus and brain stem.

I am indebted to Dr. Emanuel D. Friedman of New
(Concluded on page 237)

The Place of Psychology and Mental Hygiene in Medicine

FREDERICK L. PATRY, M.D.

NEUROPSYCHIATRIST, STATE EDUCATION DEPARTMENT, UNIVERSITY OF THE STATE OF NEW YORK, ALBANY, N. Y.

THERE is a general notion that psychology and mental hygiene are for the other fellow, but not for one's self. They aim at not only giving one information and a point of view which will assist one in better understanding of one's self, but also of one's fellows to the end that the health, happiness, efficiency and social adaptation of the individual and the group may be promoted.

In order to gain a purchase for the understanding and appreciation of current viewpoints in psychology and mental hygiene, let us briefly consider their historical development.

The word psychology is derived from two Greek words meaning "discourse" or "thought" about the "soul." In ancient and medieval times psychology was defined as the *science of the soul*. Like all sciences, psychology began as a philosophy and also as a deductive science. The soul was considered to be something about which we have no empirical knowledge. The medieval philosophers regarded the soul as an immaterial substance or entity that was separate from the body and could exist detached from it. It was looked upon as an unknown principle that gave mental life its unity and coherence. Since the soul is a theological and metaphysical concept and since psychology is a natural and biological science, we cannot make it an object of scientific inquiry. In so doing, we are not denying the existence of a soul.

Psychology was next defined as the *science of the mind*, and is still considered so by certain individuals. The term mind was at first used in an analogous sense to that of the soul. It was thought of as a relatively independent entity composed of more or less unrelated faculties such as memory, attention and will. Through its faculties it evinced itself in experience. Such a concept became untenable since we have learned that each of the so-called faculties could be analyzed into much finer units, for example, memory for digits, memory for places, names, and so forth. Moreover, mind was still considered outside of experience and therefore could not be regarded as an empirical science, which must begin with the facts of experience.

About 1850, psychologists cut loose from all assumptions and defined psychology as the *science of consciousness* in the sense of immediate experience. Psychology now becomes an empirical and inductive science which treats of the facts and factors entering into immediate experience or consciousness such as perception, feeling and impulse. Its aim is to describe and explain such as experimental facts. Today, the term "mind" is utilized by certain writers to mean the sum total of such experiences. Thus in some quarters it has been given the equivalent meaning of "consciousness," and psychology is thought of as "the science of the mind." The psychologists who so conceive of psychology are called "introspectionists" because their method is to study introspec-

tion, that is, subjective or self-observation. The two most important schools of introspection are the *structuralists* and the *functionalists*.

The method of the *structuralists* is that of the analysis of consciousness into its various parts ("mental states") and elements as viewed in a cross section of consciousness at any given moment. For example, at the present time a cross section of any part of your consciousness may consist of such mental states as ideas aroused by association with words heard, feelings of sympathy or antipathy, or perhaps ennui. These mental states may in turn be further analyzed into sensations and simple feelings of pleasantness or unpleasantness. Structuralism embraces a static point of view. The modern "Gestalt" or configuration psychology may be regarded as a modification of structuralism. But it is more synthetic and concerns itself with conscious totalities or configurations without attempting to reduce them to their actual or more or less hypothetical elements.

Functional psychology embraces a dynamic point of view. It concerns itself with the sequence of mental events or the stream of consciousness and its analysis rather than a static cross section. Usually the psychologists sponsoring it have concerned themselves with behavior as well as consciousness, but the relationship between these two kinds of facts has been rather unsatisfactorily explained. Such psychologists espouse the theory of interactionism or animism which holds that there is an interaction between consciousness and the brain and vice versa. Thus consciousness can cause behavior; therefore both aspects are their legitimate fields of study. But such a theory does not offer a satisfactory solution of the body-mind concept since the law of conservation of energy is not respected, viz., consciousness, a non-physical event, causes a physical event (behavior). The structuralists on the other hand hold that consciousness cannot cause behavior. They favor the viewpoint of psychophysical parallelism, i.e., immediate experience is parallel or acts with brain activity.

The next step in the evolution of psychological concepts is that which states that psychology is the *science of human behavior*. Those who advocated this view held that introspectionism could not be an exact science since consciousness is subjective and consequently only known to one's self. Since no one could study another person's consciousness directly, but only infer and speculate about it, behaviorists feel that they should devote their time to the study of objective behavior, its origin, development, analysis and explanation.

There next developed an empirical viewpoint in psychology which incorporated both introspectionism and behaviorism. It is probably best propounded by Professor H. C. Warren and has been called the double aspect theory, the *science of both consciousness and behavior*. Warren defines psychology as "the science which deals with the mutual interrelation between an organism and its environment." He points out that the environ-

ment affects the organism resulting in consciousness, while the organism responds to the environment resulting in behavior. Consciousness and neural activity are considered two aspects of the same thing, the latter being the immediate precursor of behavior and at the same time experienced by the subject as consciousness.

A further development in psychological concepts is that of Adolf Meyer which he at first called *psychobiology* and later *objective psychobiology*. It concerns itself with human organismal functioning of a particular type, viz., mentally integrated behavior characterized by symbolization. Mind is viewed as the total individual in action—the “I,” “he” or “you.” It has to do with the objective and positive and determinable facts of behavior (implicit as well as overt) of the functioning individual as a whole in the widest sense of receptive and constructive adaptation of the completely integrated organism. It aims to activate an interest in human beings as they are, for what they are in their own terms of critical common sense, and to reduce the essential facts to terms of an “experiment of nature”—the determination of the facts of behavior, the conditions under which the facts occur, the factors that enter into them, the way they work, and the results and means of modification.

By way of gaining a clearer perspective of the field of psychology, let us consider its *relationship to other mental sciences*, particularly abnormal psychology, psychiatry and mental hygiene. *Abnormal psychology* is a branch of psychology and is also a pure science which concerns itself with deviations from the normal in consciousness and behavior. It, therefore, includes a study of both the subnormal and supernormal in all psychological traits. This raises the question: What is normal? There are two conceptions I wish to bring to the reader's attention. The first regards normal as the ideal function or the best possible adaptation. The objection to this concept is that it contains a subjective factor, namely, ideal, which varies from person to person. The second concept is that of regarding the normal as the average or median measure of a group. Since this is a quantitative or statistical concept, we may definitely ascertain what is normal in the case of all measurable traits.

Psychiatry is a medical specialty (analogous to dermatology or ophthalmology), an applied science and art whose final objective is the diagnosis and treatment of patients suffering from varying degrees of mental ill health. Its field of work is broader than psychology, which is a pre-medical or basic medical science analogous to anatomy or physiology. Psychiatry includes the physical as well as the mental symptomatology of mental defects and diseases, their etiology, pathological anatomy and any other scientific knowledge that can be applied to their diagnosis and treatment. It also includes the care and treatment of patients requiring institutional advantages. The psychologist, on the other hand, has no right to practice in the medical sense. He is merely a specialist in a particular field of biological science, and practice requires a much broader training and experience in other sciences besides psychology, as well as in the art of handling patients in private or hospital practice.

Mental hygiene or preventive psychiatry is a development in the field of preventive medicine which, thanks to the genius of Clifford Beers, saw the light of day

in Connecticut in 1908. My former chief, Adolf Meyer, christened this movement “mental hygiene.” The primary object of this movement is the promotion and preservation of mental health. It is thus an integral part of the public health movement. Its chief task is the education of the public as to the facts and principles which have a bearing upon mental health. It aims not only to prevent mental disease and defect, but also to bring about the best possible integration of personality. Thus it sponsors scientific investigation and research into all the telling facts and factors, entering into heredity as well as environment, that cause not only mental disease, defect, delinquency, social and anti-social behavior, but also unhappiness, inefficiency and other undesirable conditions.

In order to dispel some common misconceptions of psychology, let us briefly consider a few negative aspects. Psychology deals with the facts of consciousness and behavior *as they are*, and does not set up standards of thinking or conduct. It is not concerned with ultimate values such as the good, the true or the beautiful, but only with behavior as we actually know it. Thus psychology is not concerned with ethics, logic or esthetics. It is objectively concerned with actual behavior whether it be good, bad or indifferent. Likewise, it describes the way we actually think, without concerning itself how we ought to think and reason if we wish to arrive at true conclusions. The facts of psychology reveal that we reach our conclusions on the basis of emotion, wishes, habit and temperament rather than reason or belief. These latter are largely psychological camouflage to cover up our real (known or unknown) motives. Moreover, psychology must be distinguished from such pseudo-sciences as psychical research, telepathy and spiritualism. Transference of thought from one mind to another independently of the ordinary channels of sensation has never been proved. Nor is psychology to be confused with phrenology, palmistry, and various forms of character analysis based on physical traits. The assumptions of phrenology have been exploded, namely, the faculty theory of the mind, and the theory of exact cerebral localization of mental functions. Likewise, none of the correlations claimed by physiognomy and character analysis methods have been verified by scientific methods.

We have seen how psychology has developed historically from the conception of the science of the soul to that of behavior and consciousness, and objective psychobiology. We have also briefly considered what psychology is *not*, namely, not a study of the mysterious and uncanny, not psychical research or phrenology, not any of the normative sciences—logic, ethics or esthetics. The methods of psychology were not elaborated upon; they consist of observation, introspection and experiment or observation under controlled conditions. The aims of psychology are twofold: theoretical—the description, classification, and explanation of behavior and mental phenomena; and practical—an aid to diagnosis, prognosis and control. Finally, mention should be made of the scope of psychology as seen in its various fields—general (normal adult human beings), genetic (development of consciousness and behavior in the individual), abnormal, social (responses of the individual to his social environment), racial (differences in major branches of the human family), individual (normal differences among individuals), and applied (educational, medical, legal and industrial).

Lead 4 of the Electrocardiogram

SIMON FRUCHT, M. D.

Brooklyn, N. Y.

THE electrocardiograph is an instrument of scientific precision. It has rendered valuable service in making clear the cardiac irregularities and has been of aid in the diagnosis and prognosis of myocardial affections. At the same time, much criticism has been directed to it because of its failure to indicate cardiac pathology in proved cases of coronary thrombosis. Wolfert and Wood¹ investigated this phase of the subject and reported a series of coronary cases in which the ordinary three leads of the electrocardiogram were normal but a fourth lead presented abnormal findings. This derivation is obtained by placing the right arm electrode over the precordium and the left arm electrode directly posterior, the control being switched to lead 1. By means of lead 4, an antero-posterior or sagittal plane view of the heart's electric currents is made possible. Leads 1, 2 and 3 represent the frontal plane values of the electrical events that accompany the spread of the excitation wave through the length and breadth of the heart. Lead 4 sounds the depth of the heart for information and some very interesting data have come to light.

A study was undertaken to ascertain what changes, if any, lead 4 would show in a variety of cardiac conditions. Rheumatic heart disease gave curves that suggested the type of lesion present. Mitral stenosis invariably furnished a deep Q 4 in conjunction with right axis deviation. Aortic regurgitation yielded a short Q 4 and a tall R 4 together with left axis deviation. Combined mitral and aortic disease gave rise to a tracing which reflected the dominance of one lesion over the other. The most striking departure from the normal was noted in hypertension. Master² was the first to call attention to the singular and characteristic electrocardiogram of hypertensive heart disease. He described the marked left axis deviation and the curious inversion of the T wave in lead 1. Additional peculiarities were discovered in lead 4. Q was consistently absent, R was tall and a short S made its appearance.

TO explain and interpret the various changes observed in lead 4 now became a major problem. Recourse was had to the pathological laboratory in an attempt to relate the pathological findings to the abnormal deflections in lead 4. Gross inspection of the heart in longstanding cases of mitral stenosis showed enlargement of the right ventricle to the right and especially to the left, dislocating the left ventricle posteriorly and shifting the apex to the left and backward. In hypertension, the enlarged left ventricle encroached upon the anterior surface of the heart, bringing the apex to the right and forward. The rotation of the apex forward or backward may be responsible for the variations of the Q R S complex in lead 4.

Discussion

The normal heart in its normal position yields a typical electrocardiogram. The deflections represent the frontal and sagittal plane values of the electrical events that accompany the spread of the excitation wave through auricles and ventricles. The stimulus disperses itself in every conceivable direction, to the right, to the left, above and below, front and back. The electrical pathways are determined by three planes (frontal, sagittal and horizontal), perpendicular to each other,

which intersect at the heart's electrical center. The resultant pathways for the auricles are from right to left, from above downward and from behind forward, giving rise to the upward wave P in leads 1 and 3 and the in-

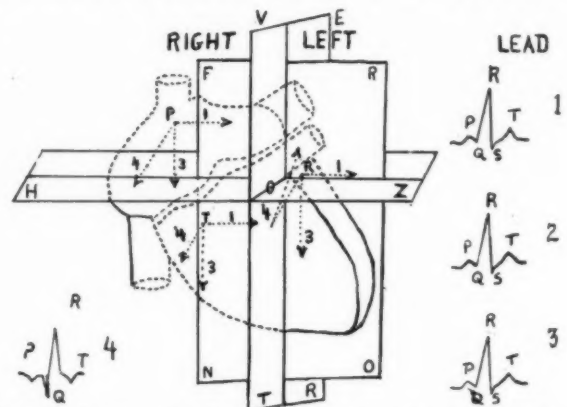


FIG. 1. DIRECTION OF RESULTANT ELECTRICAL PATHWAYS IN THE NORMAL HEART
VERT, sagittal plane, FRON, frontal plane, HZ, horizontal plane, intersecting at O, the electrical center of the heart
P, the excitation wave in the auricles. R, the excitation wave in the Purkinje network. T, the decline of the excitation wave in the ventricles.
1. Electrical pathway in lead 1. 3. Electrical pathway in lead 3. 4. Electrical pathway in lead 4.

version of P in lead 4. The Q R S complex represents the spread of the cardiac stimulus through the Purkinje network. The initial deflection is directed upward in leads 1 and 3, and in lead 4 shows a well-defined Q wave followed by a short wave above the base line. The electrical pathways for the main deflection are from right to left, from above downward and a movement first forward then backward. The end-deflection or T wave represents the decline of the excitation wave. It is directed upward in leads 1 and 3 and is inverted in lead 4. The current directions for the T wave are, from right to left, from above downward and from behind forward. Current directions from right to left, or from right arm electrode to left arm electrode, give rise to an upward deflection in lead 1. Current directions from left arm electrode to left leg electrode, or a flow from above downward, give rise to an upward deflection in lead 3.

WE have interpreted an inverted deflection in lead 4 to signify a current direction from back to front. This conception is based upon the fact that the right arm electrode is considered the negative pole and a current which travels toward the negative pole gives rise to an inverted deflection. Dextrocardia reveals an inversion of P, R and T in lead 1 because the changed position produces a reversal in current direction. The heart is normal, the electrodes are adjusted in the prescribed fashion, but the current flow in lead 1 is toward the negative pole. For lead 3 the negative pole is the left arm electrode and a current direction from below upward yields an inverted deflection. A transversely placed normal heart shows inversion of P, R and T in lead 3 because, in this instance, the current direction is reversed. The transverse heart is one in which the base is to the right, the apex is on the extreme left, the left chambers are superior and the right chambers occupy an inferior position. An electrical pathway from

right auricle to left auricle or from right ventricle to left ventricle travels upward or toward the negative pole. An inverted deflection in any lead indicates a current flow toward the negative pole. Therefore an inverted deflection in lead 4 indicates a current direction

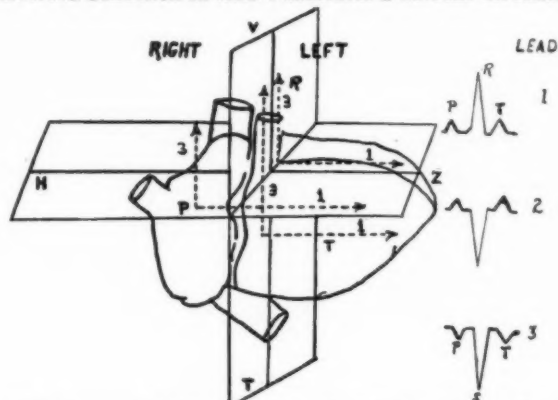


FIG. 2. DIRECTION OF RESULTANT ELECTRICAL PATHWAYS IN THE TRANSVERSE HEART. P, the excitation wave in the auricles. R, the excitation wave in the Purkinje network. T, the decline of the excitation wave in the ventricles. 1. Electrical pathway in lead 1. 3. Electrical pathway in lead 3.

to the right arm electrode which is over the precordium. The flow is therefore from behind forward.

Applying these simple rules to the electrocardiogram of mitral stenosis, we find the right axis deviation denoting enlargement to the right. The deep Q 4 represents the rotation of the apex to the left and backward. In the electrocardiogram of hypertension, we see the left axis deviation which is the result of left ventricular hypertrophy. The inversion of T 1 implies that the base of the left ventricle is the region activated last because of delayed conduction.⁴ Rotation of the apex forward is responsible for the absent Q. 4.

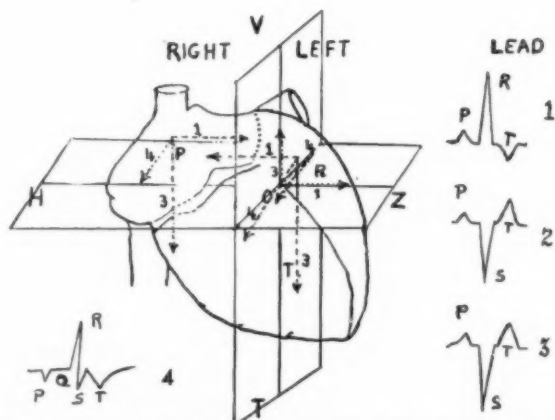


FIG. 3. DIRECTION OF RESULTANT ELECTRICAL PATHWAYS IN HYPERTENSIVE HEART DISEASE. P, the excitation wave in the auricles. R, the excitation wave in the Purkinje network. T, the decline of the excitation wave in the ventricles. 1. Electrical pathway in lead 1. 3. Electrical pathway in lead 3. 4. Electrical pathway in lead 4.

WE have endeavored to interpret the normal as well as the abnormal electrocardiogram on the basis of current direction. The electrocardiograph is nothing but a special type of galvanometer and a galvanometer is an electrical instrument to measure the force and direction of electrical currents. Current direction is the fundamental principle that explains the electrocardiogram. Departures from the normal curve are due to abnormal electrical pathways. Changes in

current direction may result from an altered position of the heart or from myocardial damage. A normal heart in an abnormal position rotates the whole heart right or left, backward or forward. This affects all the waves, P, R and T, similarly in any one lead. In dextrocardia,

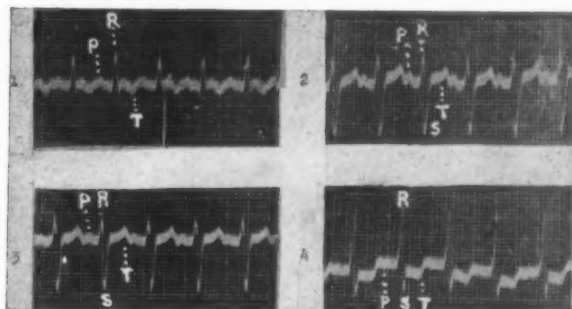


FIG. 4. THE CHARACTERISTIC ELECTROCARDIOGRAM OF HYPERTENSIVE HEART DISEASE. Upward R in lead 1 and S in leads 2 and 3 indicating marked left axis deviation. Inverted T in lead 1 indicating a current direction left to right. Absent Q, tall R and a short S in lead 4 indicating a rotation of the apex to the right and forward. B. P. 200-120. Heart was enlarged to the left, aortic second sound accentuated, systolic gallop rhythm, hemorrhages in the fundus.

P, R and T are all inverted in lead 1. In the transverse heart, P, R and T are all inverted in lead 3. On the other hand, rotation of the abnormal heart may be recognized by the presence of additional abnormalities in several leads, depending upon the type of lesion. Lead 4 is a valuable contribution in the study of the electrocardiogram. It calls attention to cardiac rotation and it exposes to view the heart's third dimension.

Conclusions

1. The electrical effects that accompany the spread of the excitation wave travel through the length, breadth and depth of the heart.
2. The resultant pathways are indicated by the character of the deflections in lead 1, 2, 3 and 4.
3. The electrocardiogram of the pathological heart reveals changes of position as well as myocardial alterations.

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Effect of Smoking on Carbon Monoxide Content of Blood

H. B. HANSON and A. B. HASTINGS, Chicago (*Journal A. M. A.*, May 13, 1933), study of the carbon monoxide content of the blood of normal persons confirm Gettler and Mattice's conclusion that "smoking is apt to be the most conspicuous factor in determining the carboxyhemoglobin of an individual under normal conditions when he is not exposed to obvious high percentages of carbon monoxide." The authors observed that normal persons who do not use tobacco and who are not habitually exposed to automobile gases showed an average saturation of the blood with carbon monoxide of 1.5 per cent. Analyses made on the blood of subjects after smoking from ten to fifteen cigarettes showed saturation of the hemoglobin with carbon monoxide varying from 3.1 to 4.3 per cent. A single determination indicating a saturation of 6.7 per cent cannot be regarded as typical. One subject who smoked a pipe showed a comparable saturation of hemoglobin with carbon monoxide, 3.8 and 4.1 per cent, after ten pipe loads. A sample of blood analyzed in the morning, twelve hours after his last smoke, showed a decrease in saturation to 2 per cent. This was not significantly changed when the blood was analyzed six hours later without smoking in the intervening period. The authors encountered no symptoms attributable to the presence of carbon monoxide in the blood in their series.

Bundle Branch Block In Hyperthyroidism

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THE most common type of cardiac arrhythmia reported in the literature as occurring in hyperthyroidism is auricular fibrillation ^{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13}, both paroxysmal and permanent. Auricular flutter ^{1, 5, 13} has been observed in some instances as well as paroxysmal tachycardia, ^{3, 5}. Reference to conduction defects is rare. There have been a few cases with prolonged conduction time ^{1, 3, 5, 10} and complete heart block noted, but in none of these was there a

thymic goiter was made, but no explanation could be given for the fever until the day after admission, when a small area of consolidation was discovered in the left lower lobe. The electrocardiogram showed a simple tachycardia (Fig. 1). As the illness continued, signs of fluid were elicited in the left chest. Later a pleurisy developed in the right chest followed by a patch of pneumonia in the right lower lobe. Nineteen days after admission, a phlebitis was discovered in her left

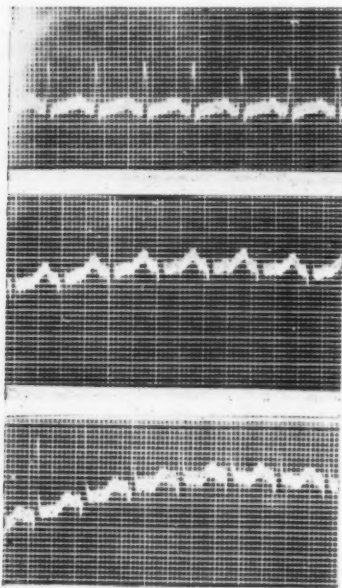


Fig. I. Simple Tachycardia. 1-24-28

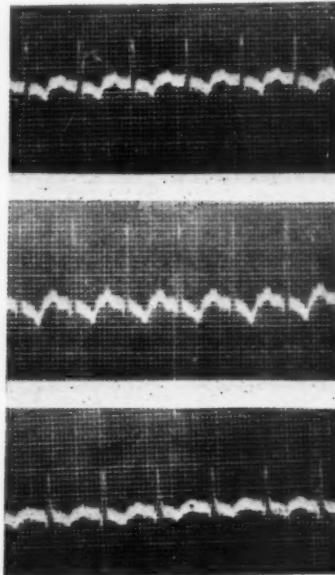


Fig. II. Showing the Development of the Inversion of the T Waves in all leads. 2-11-28

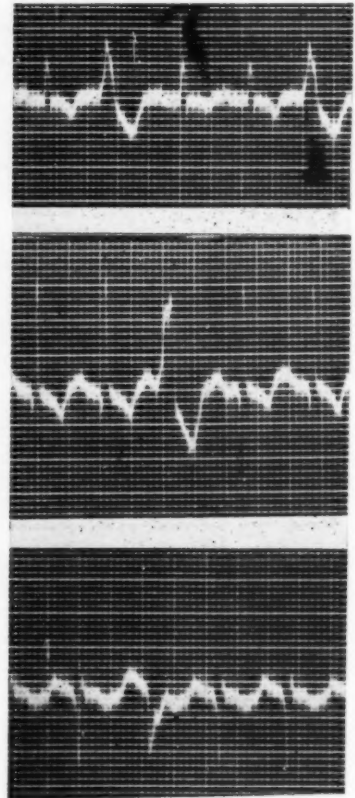


Fig. III. Thirteen days after discontinuing Digitalis. T waves inversion persisting with ectopic ventricular beats. 2-24-28

change seen following thyroidectomy. The arrhythmia associated with hyperthyroidism that will be reported is bundle branch block. The unusual feature is its disappearance after thyroidectomy. With return of thyrotoxicosis, one year and seven months following operation, it recurs as a 2-1 bundle branch block mechanism. Two years and ten months after thyroidectomy there is still some defect in conduction noted.

M. W., a female clerk, age 27, was referred to the medical service of The Brooklyn Hospital on January 23, 1928. She had complained for three months previously of nervousness, palpitation that was quite constant at rest as well as after exertion, tremor of the hands, easy fatigability, profuse perspiration at times and spells of depression.

For five days before admission there was fever, general malaise and headache. When examined on admission she appeared acutely ill, with a temperature of 102 and a pulse rate of 140. The positive physical findings were prominent eyes with a suggestion of lid lag, uniform enlargement of both lobes of the thyroid, a slightly enlarged heart with an extremely rapid rate, tremor of extended fingers and slight tenderness in the left lower quadrant of the abdomen. A diagnosis of exoph-

femoral vein. This, with the tenderness in the left lower quadrant of the abdomen noted on admission, made us feel that this was a probable cause for the bilateral embolic type of pneumonia. At this time her clinical condition was critical, and an electrocardiogram (Fig. 2) showed inversion of the T-wave in all leads, which would suggest myocardial damage, or, possibly, overdigitalization. In order to exclude a digitalis effect, the drug was discontinued for thirteen days and another electrocardiogram (Fig. 3) was secured, which showed persistence of inversion of the T-waves, which now could only be interpreted as a sign of myocardial damage, as she had received no digitalis since the previous tracing. There were also numerous premature ventricular beats and a simple tachycardia.

From The Medical Service of The Brooklyn Hospital, Dr. William H. Lohman, Chief Attending Physician.

She recovered from the pneumonia, and as the days passed the pulse remained rapid and the signs of hyperthyroidism gradually became more definite, there being noted definite increase in the prominence of her eyes, in the tremor, and tachycardia. Eighty-two days

pretracheal gland was undertaken, leaving a small amount at each pole and in the tracheal gutter. Throughout the operation, which lasted one hour and fifty minutes, her condition was fairly good. Her pulse remained at 160 from the time of induction of the anaes-

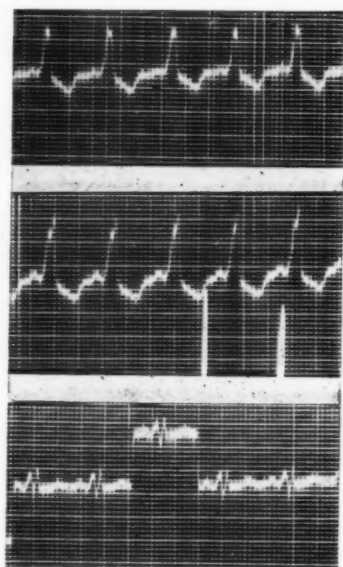


Fig. IV. Right Bundle Branch Block. 4-16-28

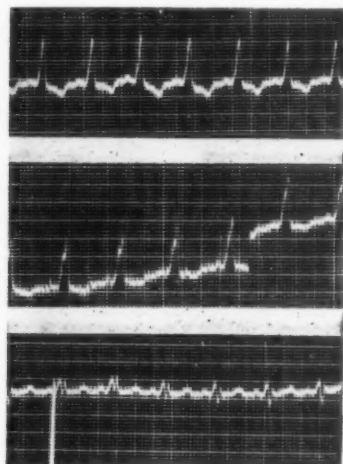


Fig. V. Right Bundle Branch Block persisting though not as marked as in the previous tracing. 4-26-28

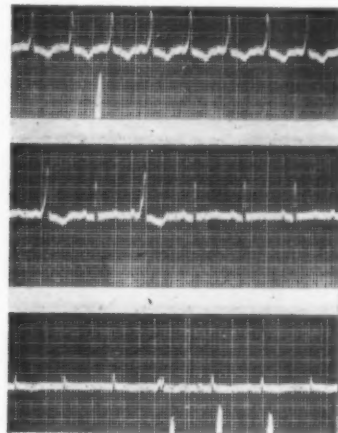


Fig. VI. Seven days after Operation. Showing for stretches that the curves have returned to Sinus Rhythm. The bundle branch type of complex can be seen persisting in lead one. 5-9-28

after admission, she had improved to a point where the question of operation for her goiter became a consideration. At this time another tracing was taken and it was noted that a marked change had occurred, for the curves (Fig. 4) were now those of a bundle branch block. They showed slurring and notching of the Q.R.S. complexes, increase in the Q.R.S. interval, and the T-waves opposite the major deflection in all leads. Dr. William H. Lohman, chief of the Medical Service, summed up the problem as follows: "A case of Graves' Disease, admitted to the hospital with an acute infection which ultimately developed into a disseminated pneumonia of both lower lobes, with pleurisy and pleural effusion. At that time her heart action was alarmingly rapid and feeble, and there was a question as to the integrity of the myocardium. Prolonged rest in bed had not modified the course of the Graves' Disease, although the patient's strength had gradually improved with the subsidence of the acute infection. Her basal metabolism was plus 50% and her electrocardiogram showed the presence of a grave myocardial disturbance, probably thyrotoxic in origin. Unless some means could be found to lessen her thyroid activity her heart would certainly be seriously threatened."

Subtotal thyroidectomy was suggested, and she was transferred to the surgical service for preparatory treatment. After being on Lugol's solution for five days her electrocardiogram (Fig. 5) was repeated and showed persistence of the bundle branch block, though less marked, as the slurring and notching in the Q.R.S. complexes were not as pronounced as in the previous tracing, and the T-wave in lead 3 had a tendency to become positive.

On May 2, 1928, 101 days after admission, subtotal thyroidectomy was performed under G and O anaesthesia. Both lobes were found to be equally enlarged, or twice normal size. The pyramidal lobe also was quite large. Subtotal removal of both lobes and all the

thesia until the end of the operation. The pathological report was Graves' disease (regressing).

Seven days after operation her steady improvement continued and her electrocardiogram (Fig. 6) showed that for long stretches the curves had returned to normal except that the T-waves were very small in lead 1. Then for short runs or single beats the old type of complex returned. In these the Q.R.S. interval was prolonged, and the T-waves were opposite the major deflection. The mechanism was interpreted as a transitory defect in conduction in the bundle of His. 14 days postoperatively her electrocardiogram showed that the curves had returned to normal. (Fig. 7).

Her basal metabolism was not recorded again before discharge from the hospital May 17, 1928, fifteen days postoperatively, but her pulse rate was noted to be 80. She had gained 14 pounds and her general appearance showed great improvement.

One month later her weight had increased to 132 pounds but her pulse was 120. An electrocardiogram (Fig. 8) taken on June 6, 1928, showed two types of ventricular complexes, a normal beat alternating with one of the bundle branch type, or in other words, there were short runs of 2-1 bundle branch block mechanism.

An electrocardiogram taken July 6, 1928 again showed the return to normal curves, and her weight at this time had increased to 138 pounds.

She returned to work and was not seen again until October 15, 1929, when she reported for a check-up on her electrocardiogram. The tracing again showed some defect in conduction through the bundle of His, for one impulse could be seen to spread in the normal way, while the next was the type seen in a bundle branch block. For long runs, alternating complexes were blocked, a 2-1 bundle branch block mechanism; then again there could be seen two, and occasionally four, consecutive beats where the impulse spread in the normal way (Fig. 9).

We were interested to see if this defect in conduction could still be explained on a thyrotoxic basis, and advised the patient to return for metabolism. Her basal

rate was determined on November 9, 1929 to be plus 23. Her pulse before the test was 124, and after the

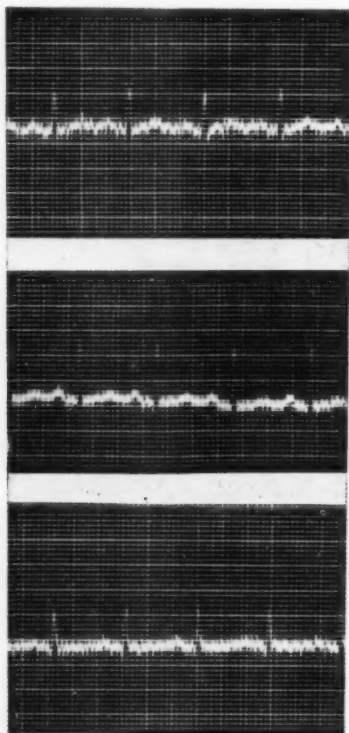


Fig. VII.
Fourteen days Post-operatively. 5-16-28
Normal Curves.

test 116. She weighed 132 pounds, a loss of six pounds in one year and seven months.

She returned again on February 3, 1931, two years and ten months after operation, for electrocardiogram and basal metabolism. The metabolic rate was plus 14

physician tells me that she now weighs 148 pounds, having gained 16 pounds in the past two years. She is able to work daily as an office clerk, but is still irritable and nervous under stress. There is a slight exophthalmus, but no tremor. The pulse rate ranges between 70 and 120; otherwise there are no symptoms or signs referable to her heart.

The unusual feature of this case is the development of a bundle branch block in a patient with hyperthyroidism, which subsequently disappeared following thyroidectomy. We have been unable to find a similar occurrence reported in the literature.

The rarity of the association of bundle branch block with hyperthyroidism of itself is a factor against this mechanism resulting from the direct action of thyroid "toxin" upon the bundle itself. For if it could be explained on a thyrotoxic basis it would seem to us that it would be a more frequent occurrence.

Furthermore, recent workers¹⁴ are of the opinion that there is not sufficient evidence to support the theory that hyperthyroidism by itself produces specific lesions in the myocardium. If the mechanism did not result from a selective action of the thyroid toxin on the bundle of His, and if the subsidence of thyroid toxemia following the operation was not accountable for the return to normal rhythm, what then were the factors involved?

First we have the factor of infection. The patient had a phlebitis which subsequently resulted in a serious embolic type of pneumonia. During this infection there was no doubt but that her myocardial integrity was seriously threatened, as she developed T-wave negativity which was demonstrated not to be due to digitalis action.

Could it be assumed that at this time there occurred, secondary to the infection, areas of myocardial damage, some of which might have occurred in or near the branches of the bundle of His, which may have impaired the function of the bundle?

Baker¹⁵ has demonstrated in a case reported that faulty conduction through the ventricular portion of

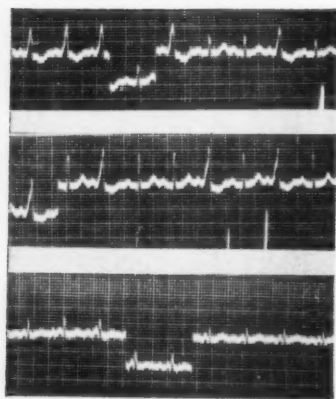


Fig. VIII. 6-6-28
This shows a return to a Bundle Branch type of complex occurring in short runs and also alternating with normal complexes. In lead III is Sinus Rhythm.

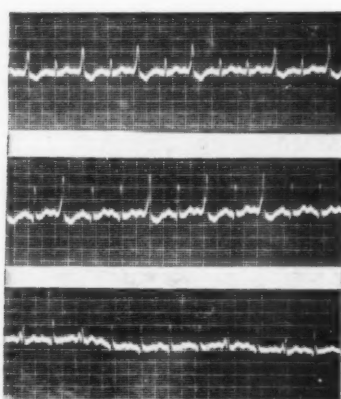


Fig. IX. 10-15-29
Shows a Bundle Branch complex alternating with normal complexes or two or one Bundle Branch Block mechanism.

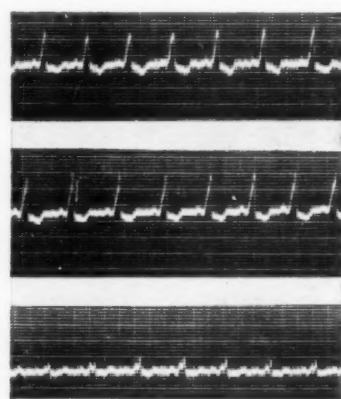


Fig. X. 2-3-31
Shows defective intraventricular conduction with inversion of the T Waves in lead I and II.

and the electrocardiogram showed the persistence of some defect in intraventricular conduction with inversion of the T-waves in the leads I and II (Fig. 10).

We have been unable to secure any further electrocardiographic or basal metabolic studies. However, her

the bundle has a certain relation to the cardiac rate, that is, that whenever the period of rest between ventricular systoles was of sufficient length the intraventricular conduction time was within normal limit and whenever the period was somewhat shortened the

faulty conduction ensued.

We believe that there is a parallelism in our case, namely, that due to the continued rapid heart rate consequent to hyperthyroidism, bundle branch block developed on account of faulty conduction in the bundle of His, probably secondary to infection; and that when the heart rate was restored to near normal limits, bundle branch block disappeared, and when there was a return to increased rate consequent to a recurrence of hyperthyroidism, defective intraventricular conduction returned, first in an alternating 2-1 branch block mechanism and, finally, in a partial bundle branch block which was persisting at the time of the last examination.

Alternating or 2-1 bundle branch block is a rare condition. Luther Kelly recently reported a case in which this phenomenon occurred, and he was able to find only two other instances in the literature.

SUMMARY:

1. A case of bundle branch block in a patient with hyperthyroidism and its disappearance following the reduction in thyroid toxemia after thyroidectomy is reported. We have been unable to find a similar occurrence reported in the literature.

2. With the recurrence of a slight degree of hyperthyroidism there was reappearance of a partial bundle branch block as a 2-1 mechanism.

NOTE: According to recent concepts, Right Bundle Branch Block, as noted in the paper, would now be called a Left Bundle Branch Block.

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430 Clinton Avenue.

Unusually High Reaction in the Cerebrospinal Fluid in Brain Tumors (Concluded from page 229)

York City for the privilege of including his case in this group:

Patient—Mrs. L. D., seen at the Beth Israel Hospital. Her story was irrelevant until several months ago when it was noted that she was developing changes in personality and lapses of memory. Three days ago, she developed an episode of confusion and headache with a tendency to walk backward. She was admitted to Beth Israel Hospital, August 9, 1931, at 3:30 A. M., in moderate stupor and with signs suggestive of a right hemisphere lesion (left supranuclear facial palsy and a left-sided weakness). This slowly cleared up. The patient then developed difficulty in swallowing and some pain in the back of the neck.

Blood count and blood chemistry figures were normal. The general medical examination was negative. The neural examination showed a slight blurring of the right disc but not definitely pathological. The left fundus was normal. No ocular palsy or nystagmus. There was a slight left facial weakness. Tendency to spare the left upper extremity. Slight Kernig and rigidity of the neck.

Lumbar puncture: clear fluid, 120 cells. The temperature rose to 101. Pulse was relatively slow. Before the spinal fluid examination, the possibility of a subarachnoid hemorrhage or a focal lesion in the right hemisphere was considered.

A neural examination three days later showed no change. Mild meningeal signs still persisted. Pulse still slow. Temperature 101. A second spinal fluid examination revealed 2000 cells, mostly polys. No organisms. Because of this high count, the administration of antimeningococcus serum was urged.

A third tap revealed 1090 cells, mostly polys. There was no change in the neural findings. The possibility of a corpus callosal lesion was considered.

Subsequent taps revealed the following counts: August 17, 1931, 200 cells, August 25, 10 cells, mostly lymphocytes.

A ventriculogram was not very informative. The patient died on September 2, 1931.

At autopsy, a tumor was found in the right frontal lobe with implication of the corpus callosum and extension to the other side. There was also another nodule farther back in the right hemisphere (spongio-blastoma with multiple centers of growth).

In conclusion—

1. These four cases again emphasize an oft reiterated point—viz., that the proper emphasis in considering a case should be placed on a careful, well taken history and not on unusual manifestations.

2. Where a high cellular reaction occurs in a suspected brain tumor, the location of the growth is in very close proximity to, if not an actual invasion of, the ventricular space.

3. Because of the probable location of the neoplasm, patients with the abnormal findings of a very high cellular increase in cerebrospinal fluid have a poor prognosis, at least under our present surgical limitations.

225 Lincoln Place.

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Obliterating Syphilitic Arteritis

LYLE MOTLEY and ROBERT MOORE, Memphis, Tenn. (*Journal A. M. A.*, March 4, 1933), believe that their case of a white woman, aged 29, is worthy of reporting because the patient presented unusual clinical observations, particularly the discrepancy in blood pressure between the two arms. This seems the more true, since nothing can be found in the literature regarding obliteration of isolated large vessels from any cause since 1925. Such isolated oblitative lesions should probably be considered clinically and sought for more diligently at necropsy than has apparently been the custom in the past, since they can easily explain unusual and at times vague signs and symptoms for which no basis can be found clinically. Obliterative lesions of the carotid from atheroma and thrombosis resulting in cerebral and other neurologic manifestations are reported. It is conceivable that similar processes, whether from syphilitic lesions or other conditions, could easily cause vague visceral disturbances, such as unexplained abdominal symptoms. Syphilitic involvement of the pulmonary vessels in the form of Ayerza's disease is being recognized clinically and reported with greater frequency. It is entirely possible that instances of oblitative vascular lesions causing other clinical manifestations will be reported with greater frequency as such conditions are more frequently brought to one's notice and necropsies are more regularly and more thoroughly done.

Bullet In Heart—Twelve Years Duration

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Brooklyn, N. Y.

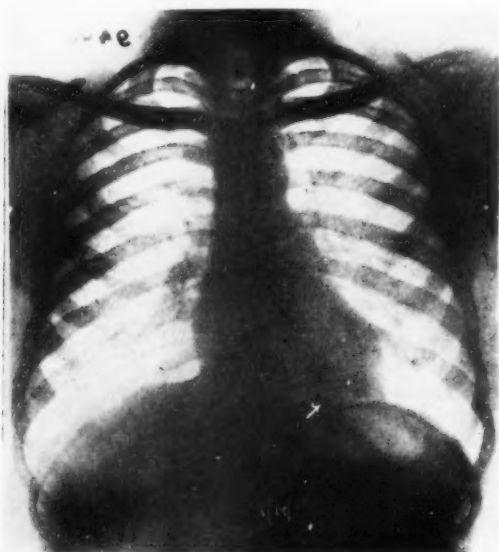
IT has long been known that the presence of a foreign body in an otherwise normal myocardium is compatible with perfect health, and may not give rise to any symptoms whatsoever. Wounds of the heart were once believed to have an invariably fatal

Brahms (17) give interesting examples of such cases. The major point of interest in these cases is the ability of the heart to tolerate surgical procedure. Stab wounds are more frequent, and reports of successful surgical treatment are common.

The first exhaustive treatise on the subject was by Fischer in 1868 (3). He collected 452 cases from the literature, with an average mortality of 90%. In 1887, Curren (2) reported a case in which a bullet was found encysted in the pericardium of a naval officer, embedded between the aorta and the pulmonary artery, and another in which a soldier was wounded in the heart by two bullets. He survived several days, but finally succumbed, "even though healthy suppuration was occurring nicely."

Duval (4), a French army surgeon, collected 62 cases of projectiles in the heart up to 1918. In 1920, Hoffman (5) collected 50 reports of foreign bodies in the heart without any apparent injurious effect. It is this type of case we are herewith recording.

Projectiles have also been demonstrated within the heart cavities (6), and have been described as passing into the heart cavities through the great veins (7). Vance (10) believes that a large percentage of gunshot wounds of the heart heal spontaneously. He states that wounds of the left ventricle show the lowest mortality, those of the right ventricle are next, and wounds of the auricles offer the poorest prognosis. The important factor evidently is the thickness of the musculature. The wall of the left ventricle can completely contain an av-

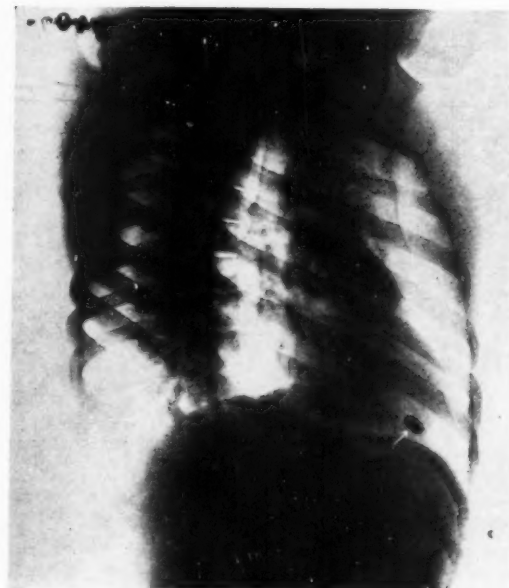


1. Dorsoventral view locating bullet just above diaphragmatic cusp and mesial to apex of heart.

outcome. The ancients were firm in this belief—Celsus, Pliny, Fallopius and Paré all subscribed to it. In 1749, Senac pointed out that non-penetrating wounds were not necessarily fatal. Since then, the number of non-fatal cases of wounds of the heart reported in the literature has increased tremendously. Interest in the surgery of the heart has also increased with newer knowledge of the resistance of the myocardium to trauma. In fact, the only surgery of the heart done to any appreciable extent today is traumatic. Concomitant with increasing reports of cardiac surgery, an increase in the number of cases of foreign bodies in the myocardium has been noted.

We believe the small number of foreign bodies reported without post-traumatic symptomatology justifies the inclusion of this case. A review of the literature reveals that Hayes (10) reported a similar case in 1921. Swearingen (11), Shaw, Cunningham, and Manhoff (12) did likewise. Matas (4) tells of a case in which a bullet was removed from the apex of the heart after the patient had been discharged from the army. The bullet in this case was encrusted with a calcareous deposit. Steckbauer (8) reported a case in which a bullet traversed the abdominal cavity to enter the myocardium. The patient recovered and, nine months after the injury, was in good health.

Many cases have been reported in which the foreign body was removed immediately after the injury. Allen (14), Birt (15), Luthi (16), Cox (9), Meyer and



2. Oblique projection. Note double shadow of bullet due to movements of the heart.

erage-sized bullet. The right, however, may do likewise, as in a case reported by the same author.

The incidence of bullet wounds of the heart in a general hospital is very small indeed. Cox (9), of

Louisville, reported 35 cases of chest wounds seen in four years in the Louisville General Hospital. Of these, but one was a cardiac wound. This fact is further demonstrated by the inability of Duval to collect more than 62 cases during the war.

We wish to add the following case report to the literature.

Case Report

J. G., Male, age 25 years, was admitted as an out-



3. Lateral chest. Bullet Anterior.

patient to The Jewish Hospital of Brooklyn on September 13th, 1932. His family history and previous history, aside from the gunshot wound mentioned below, are irrelevant. Previous health always excellent. Twelve years ago the patient was shot with a .22 calibre bullet, which entered the body adjacent to the right sternoclavicular junction just below the clavicle. There were no untoward immediate effects, and radiographic studies at the time failed to demonstrate the bullet "in the right shoulder region." No subsequent symptoms, subjective or objective, developed. The patient apparently enjoyed perfect health, partaking in vigorous athletic sports.

He was admitted with a story of vague gastrointestinal symptoms of several weeks duration, which prompted a radiographic gastrointestinal study.

Physical examination revealed a well developed male of 25, weighing 135 pounds, 5 feet 6 inches tall, apparently in good health. Pulse and respiration normal. The heart sounds were of good quality, well transmitted, with no audible murmurs. Blood pressure within normal limits. Examination of the abdomen—negative.

During routine fluoroscopy an opaque metallic foreign body was seen in the chest. Its configuration was characteristic of a bullet. It was found to rest in the anterior chest to the left of the midline, mesial to the apex of the heart and slightly above. It rose with each ventricular contraction, and dropped during diastole. Stereoscopic, lateral, oblique, and posteroanterior studies were made, all confirming the presence of the

bullet within the cardiac musculature—in this case, the left ventricle.

Detailed studies of the roentgenograms failed to demonstrate surrounding mediastinal involvement, nor was there objective evidence of pericarditis. The bullet apparently rested directly within the musculature, without surrounding lime-salt deposit. One might argue its presence within the left ventricle, in which event it must be attached and fixed to the wall of the cavity—a rather far-fetched and difficult assumption to prove. Furthermore, the absence of symptoms at the time of the accident, twelve years ago, and no interval history of note, make such a possibility unlikely.

As previously stated, the entire history was negative, and the finding was purely accidental. His physical condition was, and is, excellent.

Conclusion

A case of a bullet in the left ventricular myocardium of twelve years standing is reported. At neither the time of injury, nor subsequent thereto, did it cause any symptoms referable to the heart.

Foreign bodies of long standing are usually encrusted with lime-salt deposit. It is interesting to note no evidence of this was noted in the present instance. The constant motion of the bullet with each ventricular beat, in all likelihood, may account for this finding.

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Use of Liver Extract Intravenously in Treatment of Pernicious Anemia

RAPHAEL ISAACS, CYRUS C. STURGIS, S. MILTON GOLDHAMER and FRANK H. BETHELL, Ann Arbor, Mich. (*Journal A. M. A.*, March 4, 1933), gave 1,000 intravenous injections of liver extract to 140 patients with pernicious anemia. They observed that substances causing reactions when liver extract is given intravenously may be removed by treatment with permute and acetone. Intravenous injections of the extract made from 100 to 125 Gm. of liver may be given weekly to patients with pernicious anemia until the red blood cell count is normal, then once every month as a maintenance dose. Proper checks should be used to determine the dosage required for each individual patient. A characteristic "reticulocyte response" is induced by this type of therapy, but the average maximum percentage is higher than that reached after about forty times as much material as is usually taken by mouth in divided doses daily. The subjective changes and neurologic improvement are marked features with this type of therapy. The intravenous method presents a distinct economy in the use of liver material and allows the patient freedom from daily medication, and a non-limited diet. It also assures the physician that the patient is taking a known dose of potent material at regular intervals. A favorable response is obtained by the intravenous use of liver extract in a small group of patients with pernicious anemia who do not respond to liver or desiccated hog stomach when given orally.

Prevention In Geriatrics

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Wakefield, R. I.

GERIATRICS is that branch of medicine which deals with the treatment of diseases of advancing years, or the prevention of these diseases. That the aged require as much special attention as children is a fairly well established fact. Progress in geriatrics is necessarily slow. The aged do not seem to command as much interest as the young or the middle aged; we are prone to consider their race run too soon. We owe a good deal to the old.

A careful study of the diseases peculiar to old age, in order to make the aged more comfortable, and in many instances return them to the norm of senility, is certainly not a waste of time and effort.

Most medical articles and books are based on data gathered in hospitals. There is a difference between hospital and private practice, where one studies the disease in its incipency; in hospitals we are usually up against advanced cases. In private practice we notice the idiosyncrasies of our patients; in a clinic we are apt to overlook individual reactions to disease.

This article is based on a group of cases observed recently in office practice, with a short notation of the present condition and a thought about the past—and what might have been done to prevent these diseases. When a patient consults us we must think of immediate relief of the present condition. Then we must ask ourselves two questions: What relation has the present condition to the future, and if relief follows treatment, what preventive measures should be taken to avoid relapses in later years? What could have been done in the past to prevent the present state of affairs? Our surmises may not be correct but they are often constructive.

Circulatory Disturbances of the Feet. At present I am treating three patients, all past the age of 70, who have circulatory disturbances of the feet. In each case the urine is sugar-free and the blood sugar is normal. X-ray shows evidence of arterial obliteration. In each case the feet are small, but show evidence of pinching. The toes have not been allowed to stretch as they should; the shoes are too short and too narrow. There has been an increase in weight in the individual and the feet are overtaxed. As an experiment, the writer has tried to stretch the feet of a man aged 50. The shoes have been increased from 8½ C to 9½ D. At first the shoes were too large, of course, but within two months they were found to be too small and size 10½ D was recommended. As before, these were much too large but within a month they were filled out by the feet. The feet have actually increased in size merely because they have been allowed to spread out. Many people are fond of small feet. It is extraordinary how an old man can dote on the size of his feet. Women, of course, are always conscious of their feet and few wear shoes large enough. Sensible shoes should have round toes, with a straight inner line. It is almost impossible to convince some of these elderly patients who have circulatory disturbances of the feet that they should wear a larger shoe. Some seem to react less acutely to a prognosis of gangrene than to the prospect of wearing shoes they find grotesque in comparison to the inade-

quate footwear they have been accustomed to.

Continued pressure due to tight shoes must have some effect on sclerosed vessels of the feet. It seems reasonable to presume that proper shoes would prevent many such disturbances in old age.

Varicose Veins. One patient wears high shoes and the tops are so tight that the circulation in the legs is impaired. Larger shoes, oxford style, have relieved the swelling somewhat, and also the accompanying pain.

Prolapsus Uteri. Many aged women suffer a great deal from this condition, which could have been corrected in earlier life. Relief follows the use of a rubber ring in these cases, but irritation causing severe inflammation may occur.

Arthritis. One patient, aged 77, is badly crippled with arthritis, which followed the removal of teeth and tonsils at the age of 65. In this case it was too late to eradicate the focal infection. Foci should be removed before the damage has been done; in many instances the late removal of foci does more harm than good. So often, in old age, are we confronted with nephritis, arthritis, or neuritis, which can probably be traced back to infected teeth and tonsils, that we owe it to our patients to prevent these conditions in later life by insisting that all abscessed and devitalized teeth be removed at the age of forty. This also applies to tonsils. In many cases, infected teeth and tonsils will affect the heart. In advancing years, if an infected tooth must be removed, the writer uses a stock vaccine (streptococcus combined immunogen) for several weeks after the removal of focal infection, to offset the toxemia.

To repeat, we could prevent many diseases of old age by early removal of focal infection. We would prevent many cases of cancer of the mouth by the removal of sharp, jagged teeth. We would build up the resistance of these patients by the elimination of toxic centers, which in time undermine the health of the aged and expose them to other infections.

Prostatic Hypertrophy. Infected teeth, or infection in other parts of the body, often cause prostatic inflammation in the aged. Removal of these foci, relief of constipation, exercise and prostatic massage will often make operations unnecessary.

As to operation, in some cases an in-dwelling catheter for two weeks prior to operation, with bladder irrigations once or twice a day, and attention to the general health of the patient, will permit a single operation instead of the two-stage procedure.

Cancer. Many cutaneous cancers in old age are seborrhic in origin and proper attention to the scalp and skin would save a bit of trouble. It is not uncommon to see aged people who never wash their scalps, and their skin none too often. No wonder they have seborrhea; little wonder that fungi thrive in such media. The general practitioner would do well to study precancerous conditions; a great percentage of cancers could be prevented by proper attention to these lesions. These include cutaneous horns, senile keratoses, senile warts, etc. Cancer of the mouth can be prevented by the removal of sharp teeth, proper attention to underlying syphilis and not permitting excessive smoking.

Cancer of the cervix uteri is quite common in old age and could have been prevented in earlier life by proper care of cervical tears occurring during labor. Many of these patients have never been examined and only seek advice when the bleeding becomes excessive. In spite of modern educational methods, many of these patients neglect themselves—the individual's improper reaction to information which she has received.

Gallstones. Many of these patients suffer a great deal but may be too old for operation because of myocarditis or other complications. Many have taken patent medicines for "indigestion" for years or perhaps they suffered infrequently at maturity and it did not seem important to correct the condition at that time. However, many of the aged patients could now have a comfortable old age had gallstones been removed. One patient suffered for a year with gallstone attacks. When she came to operation she had cancer of the gall-bladder, which might or might not have been prevented by an early diagnosis of gallstones.

Dolichocolon. Two aged patients have suffered great agony from this condition, which is an elongation of the colon, with resulting flexures, kinks and loops. There is usually a sharp angulation at the splenic flexure and a dropping of the transverse colon. A well-fitting abdominal belt and oil, agar and phenolphthalein usually relieve the condition. The symptoms are similar to those of carcinoma of the colon, in some cases.

Diabetes. Periodic health examinations, especially at the ages of 40 and 50, will reveal many cases of glycosuria. A routine blood sugar estimation should be made on each patient once a year. In this way many diabetic conditions could be prevented. In the aged it is not safe to use insulin because of the danger of precipitating an attack of angina pectoris or coronary thrombosis.

Coronary Thrombosis. Many of these patients are treated for indigestion. An early diagnosis, with proper treatment, might prolong the lives of these patients for some time—for years in some instances. Angina pectoris patients should never be without nitroglycerine and they should take a dose immediately when the attack is felt. Someone in the family should have morphine on hand to administer to any patient who has coronary thrombosis; each minute counts and one should then not wait for a physician to give relief. We should beware of "indigestion" in the aged; it is often due to coronary thrombosis.

Renal Disease. Inclusion of a blood non-protein nitrogen test once a year, in the periodic health examination of those past forty, would reveal many incipient renal conditions and proper treatment could be recommended.

Deafness. Much trouble could be spared if the aged person would learn lip-reading as soon as his hearing is impaired.

Hernia. A careful search for hernia, especially femoral, should be made at maturity and proper treatment given. This will spare much suffering in old age. Moreover, the operative risk is much better in the fifties than in the seventies.

Tuberculosis. Pulmonary tuberculosis in old age is quite common. The aged patients affected with it live a long time and infect many who come in contact with them. In a general hospital, the writer saw a tuberculous woman in the ward; young patients in beds nearby certainly had their chance to pick up the infection. We should be on our guard constantly for tuberculosis in the aged and examine the sputum of each patient.

Pneumonia. The sputum should be examined for tuberculosis in each case. Many of these aged patients who have pneumonia also have septic mouths. Probably many of them are infected from their own mouths. A chronic focal infection in the aged will lower the resistance so that they fall an easy prey to pneumonia.

Appendicitis. In advancing years, sensibility is reduced and an old man can have appendicitis with very little or no pain. The white blood count may be normal but the differential count usually shows some evidence of severe infection. There may be very little abdominal tenderness and the condition may be overlooked quite easily. The pulse rate is usually increased and this is an important finding.

Anesthetics. The safest anesthetics in old age are spinal, local and ethylene.

Postoperative Treatment. One reason why old patients do not do well after operation is because they are kept in bed too long. It is necessary to get the patient out of bed at the earliest possible moment, earlier in fact than at any other age. After a few days in bed the aged person gives up the battle. Moreover, the circulation improves when these patients are allowed to sit up.

Bleeding from Hemorrhoids. The loss of blood from hemorrhoids each day may be unknown to the patient. The examiner should inquire about the loss of blood if rectal examination gives any clew. I have seen three patients whose hemoglobin was down to 20—a secondary anemia due to the daily loss of blood from hemorrhoids. They gave all appearances of cancer, yet when the cause was discovered they quickly recovered.

Periodic Health Examinations These examinations, in skilled hands, will prevent many diseases of old age. They should be continued each year even in extreme old age. In this way we are often able to find some condition which can be corrected, thus making the aged more comfortable. It may be the relief of prolapsus uteri by operation or by the use of a rubber ring; it may be the recommendation of a shoe which will permit fresh air exercise in more comfort, thus preventing many symptoms inherent in a sedentary life. It may be the removal of a cutaneous horn which has made the aged woman so conscious of her hideousness that she hides from her friends. A properly fitted truss may add comfort; an abdominal belt may relieve the symptoms due to visceroptosis. Removal of ear wax may completely restore the hearing. The diet may be arranged to correct glycosuria. Here a word might be said for the Joslin treatment of diabetes before the days of insulin. We cannot deny its success in those days. Now in old age we cannot start the use of insulin because of the danger of angina pectoris, but we can return to the old Joslin treatment and be agreeably surprised how some of these old patients will improve.

There may be an insufficiency of protein in the diet causing edema; lack of vitamin B may be causing stomach or intestinal conditions, nervousness or edema. An infected tooth may be removed in some cases and give relief to some distant affection, such as nephritis, prostatitis, or conjunctivitis. I have seen a chronic discharge disappear from the ear after the removal of an infected tooth. In the same patient, a few months before, there was a severe conjunctivitis, which was re-

(Concluded on page 244)

Auditory Speech

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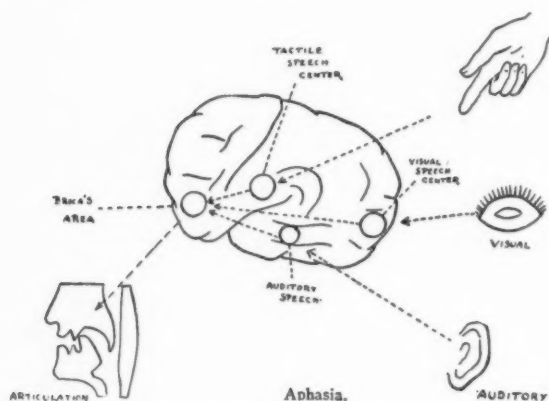
SPEECH is an association process involving afferent sensory paths, a motor efferent path and a number of centers. The speech motor center or Broca's area is in the left third frontal convolution. The most important speech sensory centers are the visual speech centers in the occipital lobes, the auditory speech centers in the temporal lobes and the tactile speech centers in the central parietal lobes.

SPEECH PATHWAYS

An impulse to speak may travel along any of the sensory speech avenues, the visual, the auditory, or tactile, or all, depending upon whether the stimulus comes from the eye, ear or touch. The impulse travels along the afferent paths to the respective sensory center, from where it is relayed to Broca's area where it is converted into a motor speech impulse and travels to the peripheral speech organs.

APHASIA

A lesion in Broca's area causes motor aphasia, that is, the person cannot talk but he can read, hear and feel. A lesion in the visual speech center causes visual aphasia, that is, the person can talk, hear and feel, but he cannot read, a condition known as alexia. A lesion in the auditory speech center causes auditory aphasia, that is, the person can talk, read and feel, but he cannot understand spoken language. In other words, he has a central deafness. Not being able to hear properly, he soon loses control of speech and a paraphrastic gibberish talk develops secondary to his aphasia. Tactile aphasia is rare and consists in the inability to recognize objects by the sense of touch. This form of aphasia would be of most importance in the blind who have been taught to use the braille system for it would deprive them of the power of reading by touch.



HEARING THE SPEECH

Of all the forms of speech the auditory one is the most important. We are born dumb as well as deaf and blind. Hearing appears very early, even from the first day. The deafness at birth is due to the absence of air in the middle ears. As respiration proceeds the air is forced through the Eustachian tubes into the tym-

panic cavities, and with the establishment of proper aeration hearing develops.

The sense of hearing is the most acute of all the senses the child possesses. We are all acquainted with the "sh'hush, make no noise, baby is sleeping." This admonition is well warranted, for children react most readily to sound, even more so than to light. A strong light held in front of a sleeping child may cause it to turn about, but a noise will awaken it and a loud noise may even throw it into convulsions.

LEARNING TO SPEAK

Through its hearing the child learns to speak. Speech is acquired by imitation. The child tries to repeat the sounds he hears. Because the child's articulatory coordination is undeveloped the early speech of the child is made up mostly of vowel sounds. The easiest vowel to pronounce is broad "a" (ah), for it requires simply a lowering of the jaw and this is the first sound the child produces. The consonant sounds requiring the same simple articulatory mechanism are "m, p, t and d" and these are the sounds next to follow. As a result, the child's first attempts at language result in the pronunciation of the sounds "ma, pa, ta and da."

To speak these sounds and others the child must first hear them. If he hears them poorly or incorrectly, he will speak poorly or incorrectly. That this is so is shown by the fact that some persons of defective speech need no other correction than to be placed near the person speaking or an instrument by which the sound is intensified. Children who do not hear at all will not of their own accord learn to speak.

SPEECH OF THE DEAF

Teachers who work with young deaf children can often tell whether their pupils have any appreciable amount of residual hearing by the way they reproduce sounds. The more hearing the child has, the more pleasing his voice and the better his speech. Totally deaf children may speak correctly so far as the actual sound formations are concerned, but their speech lacks so many qualities due to the lack of hearing that a person not used to the speech of the deaf would not understand them.

Inasmuch as hearing colors the speech, whatever hearing a deaf child may have should be utilized in developing spoken language. Since the invention of the audiometer, it has been possible to detect even very small degrees of hearing and children who formerly were classed as totally deaf are now classified in the hearing groups. All children possessing any appreciable degree of residual hearing should receive auditory speech training.

MENTAL MUTISM

Simply to hear does not mean that one is able to speak. The lower animals have acute hearing but they do not talk. Why? Because speech is an association process dependent upon the proper function of not one center but many centers. The centers work together normally only when the intellect is of a higher order
(Concluded on page 244)

Diagnostic Methods In Allergy

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THERE are a number of methods employed in making a diagnostic study in the field of allergy. The first thought that comes to one's mind, when mention is made of the diagnostic methods in allergy, is that of skin testing, *e.g.*, the protein sensitivity tests by means of the cutaneous reaction. This, however, is only one of the methods by which a diagnosis is reached in this branch of medicine. Before attempting to do this work, it is necessary for the physician to be familiar not only with that but with the various other methods of testing, namely:

Patch test
Scratch Patch test
Local Passive Transfer
Ophthalmic
Intranasal
Environmental

It is often necessary to use a combination of several or all of these methods in order to arrive at a proper diagnosis.

CUTANEOUS TEST. Of course the skin or cutaneous tests are the most universally and routinely used in all cases. There are two methods in vogue, the intradermic and the scratch. These tests aim to reproduce in the skin a swelling or edema which is analogous to the pathological changes occurring in the mucous membranes of the nose and respiratory tract in such allergic conditions as hay fever and asthma. We have found it advantageous to use the intradermic method almost exclusively in preference to the scratch skin test. It is more accurate with less discomfort to the patient and gives positive results in the less sensitive individual. I have found the tuberculin syringe best suited for this purpose. The barrel is graduated in tenths or twentieths of a cubic centimeter. It has a metal plunger made tight with asbestos in order to prevent leakage. The needle used is stainless steel, 26 gauge, $\frac{3}{8}$ in. long.

PATCH & SCRATCH PATCH TEST. These tests are necessary in those allergic conditions not manifested by mucous membrane sensitivity, such as, contact dermatitis, poison ivy, eczema, etc. The reaction obtained by these tests is more like the skin condition for which we are testing. The simpler test is performed by saturating a small piece of blotting paper or gauze with the particular extract to be tested and applying it to the anterior surface of the forearm or any other site. This is then covered with a piece of cellophane and held in place with adhesive. Reactions appear in twenty-four to forty-eight hours. This test may be supplemented by a scratch.

OPHTHALMIC & INTRANASAL TESTS. These are used only after routine skin testing. When the skin tests are not conclusive and there is a definite clinical history, these tests are employed. With these, we are really reproducing the condition for which we are testing. The reactions are immediate and definite. They are used for confirmation in such conditions as hay fever, allergic rhinitis, etc.

LOCAL PASSIVE TRANSFER. This test was first described as a phenomenon by Prausnitz and Kustner¹ in

1921. Many workers have later made it practical as a skin test. It is also a confirmatory one and is especially of great help in children where skin testing is found very difficult. A site is prepared with the serum of the patient in the forearm or arm of the mother or some other non-allergic individual. These sites are then tested with the various allergens in question. This procedure indicates the transferability of the reagins in the patient's blood.

ENVIRONMENTAL TEST. By changing the environment of a patient, we determine whether that is a factor in the causation of symptoms. It frequently happens that a patient will lose his symptoms of hay fever or asthma merely by putting him in another locality.

For these various tests, different kinds of extracts and solutions are necessary. The solutions used for intradermic testing are aqueous alkaline extracts², standardized according to their nitrogen content by the Kjeldahl method³. For the patch tests, oils are generally employed. The various allergens are extracted into an oily substance. For the ophthalmic test, the same extracts are used as for the intracutaneous method. For the intranasal test, only dry powdered allergens have been employed.

In the testing, a certain routine is followed with every patient. They are put through three series of skin tests at first.

SERIES I. Inhalants—including dust, feathers, pollens, animal danders, insecticides, cottonseed, orris root, etc.

SERIES II. Foods—including milk, egg, various cereals, fish, meats, nuts, fruits and vegetables.

SERIES III. This series includes stronger extracts of Series I. These extracts are usually only employed where the patient has given a moderate or suspicious reaction with any particular allergen already tested.

After these series of routine tests are done, the patient is then given such special tests as are indicated in the particular case.

It is the MODERATE reactions about which we must be most careful. We must definitely decide whether these reactions are factors in the causation of the patient's condition. A reaction is known as moderate when the test applied increases to three or more times its original size, with the presence of erythema around the wheal, with or without itching, but without pseudopod formation. It is these moderate reactions which give most trouble and it is only after careful and diligent study and testing that we can decide as to their specificity. In order to accomplish results, it is essential to be properly equipped and familiar with the subject.

It is my opinion that the bad results obtained in the hands of many who are not thoroughly familiar with the problems of allergy are due to the fact that such practitioners are not properly equipped and that they do not avail themselves of all the necessary methods of diagnosis.

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Read before the Bedford Medical Society, Brooklyn, N. Y., March 30, 1933.

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Prevention in Geriatrics

(Concluded from page 241)

lived in 48 hours after the removal of an infected tooth. We may find that bran is causing colitis; that the old man is sleeping in his chair during the day and therefore cannot sleep during the night. A woman who has had casts in her urine for twenty-five years finds herself in good health in spite of her doctor-husband's diagnosis of Bright's disease.

Much can be done for the aged if we will devote a little study to their peculiarities. More than that, a genuine interest in their welfare will bring about surprising results. The first requisite for success is a genuine interest in the aged, and the close following of a few geriatric principles.

Auditory Speech

(Concluded from page 242)

than that of animals. The same is true in the feeble minded. The idiot hears, sees and feels but he cannot interpret the sounds he hears. He does not associate properly, his word imagery is poor, and consequently his speech is defective. This type of speech defect may well be termed mental mutism.

BABY TALK

Every teacher of speech will warn you against the use of baby talk to your child. Why? A child develops the kind of speech he hears and stores up this speech in the form of word images. The baby word images are retained in the auditory speech centers and these images then appear to him in later life as the auditory symbols of the words he hears daily, as a result of which he uses baby talk under the impression that he is reproducing the sounds he hears. In addition there is a kinesthetic and tactile disturbance. The sensory stimuli of the muscles of articulation are those to which he has become habituated by the baby talk, and those peripheral impressions must be corrected as well as the faulty auditory word images in the treatment of these cases.

ACQUIRED DEAFNESS

There is a large number of external auditory defects which directly or indirectly affect the speech. The most common of these are impacted cerumen, intranasal obstructions, disease of the middle ears and Eustachian tubes, adenoids and new growths in the auditory canal.

It is astonishing for how long a period of time, extending even into years, a person will go about with his ears packed full of cerumen and still be unaware of it. Though there is a diminution in hearing, it is gradual and the individual becomes accustomed to it. The character of the voice may change but the process is slow and the individual subject does not notice it. In children cerumen in the ears is very common. When a history is obtained that the child spoke at one time or imitated sounds but gradually stopped talking, the ears should be investigated for cerumen.

Intranasal obstructions, whether deviated septum, enlarged turbinates or polypi, interfere with proper ventilation and conduction of the auditory apparatus. The sound conduction becomes increased through the obstructing bone masses in the nose and a sort of hyperacusia develops with a consequent lowering of the voice which may reach a whisper.

Adenoids affect the hearing directly by obstructing the Eustachian tubes and indirectly by causing middle

ear disease. In addition they produce a relaxation of the soft palate and interfere with the head resonance. The result is a nasal, muffled, and indistinct speech.

ENVIRONMENTAL SPEECH

Assuming that the central and peripheral speech mechanisms are normal, the foundation of the speech the child will use in life depends upon that which he hears in the home, in the school and in the street. It is useless to expect a child to speak correctly unless he hears correct speech spoken. The child's auditory sense should be accustomed to good speech so that a lasting impression will be made upon his mind, for, after all, it is the effect of strangeness that prevents the adoption of good speech. The ear should be attuned to correct speech in the home and school so that some echo of it will last through the various stages of development and reassert itself in later life.
150 West 55th Street.

Emergency Relief Act and Medical Service

Five hundred million dollars was made available for the relief of needy and distressed people by the Federal Emergency Relief Act, approved by the President, May 12. This supplements the unexpended balance remaining from three hundred million dollars provided for the relief of destitution and distress by the Emergency Relief and Construction Act of 1932. These huge appropriations indicate the magnitude of the problem that confronts the country. Whereas the earlier act did not indicate clearly whether the money made available could be used for the alleviation of suffering and distress due to illness and injury not directly traceable to unemployment, the act recently passed seems clearly to make adequate medical and hospital services available for the relief of needy sick and injured persons regardless of the origin of their diseases and injuries.

The provisions of the Federal Emergency Relief Act of 1933, under which the federal government is now aiding the states in their efforts to alleviate distress, replace similar provisions of the Emergency Relief and Construction Act of 1932. The money made available by the earlier act could be used only "in furnishing relief and work relief to needy and distressed people and in relieving the hardship resulting from unemployment." This ambiguous phraseology gave rise to doubt whether needy and distressed people were entitled to relief when their needs and distress could not be traced directly to unemployment. The language of the Federal Emergency Relief Act of 1933, when read as a whole, does not permit such narrow construction. It authorizes grants to the several states "to aid in meeting the costs of furnishing relief and work relief and in relieving the hardship and suffering caused by unemployment in the form of money, service, materials, and/or commodities to provide the necessities of life to persons in need as a result of the present emergency, and/or to their dependents, whether resident, transient, or homeless." The nature of the emergency to be relieved is stated in section 1 of the act as "a serious emergency, due to widespread unemployment and increasing inadequacy of state and local relief funds, resulting in the existing or threatened deprivation of a considerable number of families and individuals of the necessities of life, and making it imperative that the federal government cooperate more effectively with the several states and territories and the District of Columbia in furnishing relief to their needy and distressed people." Certainly this language will neither justify nor excuse a construction of the act that denies the aid of federal funds to all ill and injured persons who are in need, without regard to the origin of their illness and injuries.

Physicians and hospital administrators have already seen numerous instances of distress due to illness and injury not traceable directly to unemployment without relief because, it was said, federal loans could not be used to aid in the maintenance of hospitals or in furnishing medical relief. Now that federal funds have been made available, physicians and hospital administrators, wherever state and local funds are inadequate to provide relief, should lead the way in asking the governors of their respective states, if they have not already sought federal aid under the Federal Emergency Relief Act of 1933, to seek such aid at once. If the state has already obtained a grant under that act, the use of it to afford relief for illness and injury may be demanded. The first effective move in any case must be made by the governor of the state, who alone is authorized by the act to make application for a federal grant.

—J. A. M. A.

Special Article

The New Deal at Saratoga

MANY factors are operating irresistibly to appease the healthy type of professional skepticism pending general acceptance of the conservative claims regarding the Saratoga waters' therapeutic efficacy made by the highly accredited medical sponsors of the spa.

In other words, that cultural point, in the case of

ical science has been proven by Stern to be, after all, always ineffectual. Moreover, the modest facilities of the plant have limited expansive effort.

What are some of the factors that make it quite safe for us to say today that too much leaning backward—of which the aforesaid medical sponsors have been, of



From a Drawing by Joseph H. Freedlander, Architect

The Clinical and Research Laboratory at Saratoga Springs.

The Laboratory Building will have a frontage of 160 feet and a depth of 245 feet. The first floor of the unit now under construction (the second unit is to be erected with part of the funds received from the Reconstruction Finance Corporation) will be given over to an office on the right of the entrance hall, a waiting room on the left, four offices for physicians, two examination rooms, four experimental baths with rest rooms attached, and a nurses' room.

On the second floor will be a general waiting room and rooms for cardiographic, auditory heart, blood pressure and capillary examinations. There will be fluoroscope and X-ray installations, a chemical laboratory and a basal metabolism laboratory. For the examination rooms there will be five dressing rooms. Offices for the medical director and members of his staff are included as well as a library and a museum, the latter 25 by 40 feet.

Saratoga, has about been reached which Professor Bernard Stern, of Columbia University, postulates as decisive in finally nullifying the normal resistance, if not aggressive opposition, to all phases of medical progress (*Social Factors in Medical Progress*, New York, Columbia University Press, 1927).

The aforesaid medical sponsors have themselves contributed, quite deliberately, to the conservative, not to say skeptical, attitude in this matter, since, however deep their purely personal convictions, they have not wished to take action, prematurely, that might even suggest the attainment of the point postulated by Stern, when in fact no such point had been reached; obviously, there would have been no wisdom in any undue haste or self-deception, which past experience in med-

late, accused by eminent but friendly critics—can now be discarded as strategically and scientifically bad? They may be listed as follows:

1. Adequate support of the spa's public health aims and physical evolution by the Federal as well as the State Government (the Reconstruction Finance Corporation has just allotted \$3,200,000 to the spa) is now assured, registering complete confidence in the genuineness of the spa's hydrotherapeutic potentialities as expounded by an eminent medical commission representing organized medicine.
2. The spa is in the very act of preparing aggressively to do its part in combating, by means of its preventive and conserving powers in the cardiologic realm, the rapidly growing menace of heart disease

which is a characteristic of our present civilization, marked as the latter is by killing hurry and strain. We save more lives in early life than ever before, but the infections that we now deal with so successfully leave their marks upon the heart or vascular system frequently enough to cause trouble in later life. We must be prepared to succor these people before their later experiences prove too much for them.

3. The therapeutic potentialities of this great American spa have been attested by such European authorities as Groedel, professor ordinarius of the medical faculty of the Prussian State University at Frankfurt-am-Main and director of the Kerckhoff Institute for the study of affections of the heart; Gustav Toepfer; and Dr. Paul Haertl, head of the Staatslaboratorium of Bavaria. Contemporary American experts in this domain who lend the prestige of their endorsement to one phase or another of the work at the spa are Dr. Oskar Baudisch and Dr. David Davidson of the Rockefeller Institute, Dr. Malcolm Goodridge, Dr. L. Whittington Gorham, Dr. Milton B. Rosenbluth and Dr. John Wyckoff.
4. A Medical Director, Dr. Walter Stuart McClellan, now for the first time provides at Saratoga that caliber and equipment in a medical executive without which, in the clinical, therapeutic, laboratory and research domains, all were as sounding brass and tinkling cymbals. Trained in the Harvard Medical School, the Russell Sage Institute of Pathology (research fellow in medicine), the Kerckhoff Institute at Bad Nauheim in Germany, and now teaching in the Medical Department of Union University (Albany Medical School), he brings an exceptional contribution to the field of hydrotherapeutics.
5. Most important of all, we find that advances in medicine now make more intelligible certain physiologic effects of the bath in the course of cardiac therapy which have not hitherto been fully elucidated. We shall discuss this factor rather fully at this point.

One may say that in the first phase the therapeutic merit of the springs was real but empirically applied and unrationalized; then followed a phase of exploitation and commercialization; the present phase finds the merit of the waters—always genuine—relatively rationalized and no longer so closely identified with empiricism.

Slightly radioactive and electrolyte-laden water, naturally supersaturated (40 per cent) with carbonic acid gas, is utilized for the Saratoga cardiac therapy.

What is the rationale of this type of bath? Why does it exert such beneficial effects upon cardiomyasthenia (except in advanced cases), moderate cardiac dilatation, coronary disease, functional disturbances, etc.? Why does edema disappear, large livers diminish in size, insomnia and dyspnea improve, and the transverse diameter of the heart lessen, as has been repeatedly demonstrated radiographically?

In the first place, the carbonic acid gas bath produces the sensation of heat even when given at a somewhat cool temperature; the skin reddens, with a very noticeable demarcation between the immersed and the non-immersed parts. The gas specifically irritates the

skin nerves and so influences the vegetative nervous system; it specifically irritates the capillaries and so changes the blood stream; it influences the endocrines by irritating the skin as an independent organ; it passes through the skin (Groedel) and acts directly on the blood and tissues. It is the increased activity of the cutaneous circulation, and the consequent shifting of the splanchnic blood current, that account for the results. The redistribution of the blood and the lessening of heart labor were familiar phenomena to Dr. Simon Baruch, and that keen clinician (whose monument is the present spa) expounded the physiologic rationale of them most ably, in so far as was possible in his day. To those who related the cyanosis of heart disease to the presence of carbon dioxide in excess he responded by showing deficiency of oxygen to be the real factor. This clinical Titan of other days was well aware, more by an uncannily correct intuition than by the actual tests available today, that the gas penetrated the skin.

The carbonic acid gas bath trains the cardiac musculature without at the same time increasing the frequency of the beat, which is so often undesirable. The slowing of the pulse and the lengthening of the diastole improves the coronary circulation with favorable myocardial effects. The hydrostatic pressure increases venous pressure, while the arterial blood stream and capillary circulation are improved by relaxation of the muscles which is a constant consequence of the carbon dioxide bath and by a most important additional factor which we must also take into account.

What, then, is the new knowledge that now all but completes the elucidation of this hitherto esoteric field of physiology? It is the knowledge pertaining to vascular peristalsis and the specific influence upon it of carbon dioxide. It is a remarkable fact that this was deduced by Baruch himself, since he believed that the absorbed gas exerted an "influence . . . upon the . . . unstriated coats of the arteries." Baruch flourished at a time when what he said on this point excited no particular interest; he was in the same position as Cesalpinus when that ancient worthy understood the general circulation very well indeed and Harvey was still to be heard from. So the work of the pioneers in the field of vascular peristalsis has until now led to no widespread realization of its deep significance. But now that an understanding of certain phenomena demands a taking into account of vascular peristalsis one may expect faster progress. Here again we realize the cogency and validity of Professor Bernard Stern's discussion as to the relation of a disseminated culture to progress.

Dr. Charles S. Danzer has convincingly demonstrated the "peripheral vascular dynamic mechanism," as he characterizes it. He completed his work in 1919 in the Physiological Laboratory and the Medical Clinic of the Johns Hopkins Hospital. His work will be found recorded in the *Proceedings of the Society for Experimental Biology and Medicine*, 1925, xxii, pp. 217-221, and in the *Annals of Clinical Medicine*, Vol. III, No. 8, February, 1925. This was a brilliant culmination of the work of many predecessors, dating back to 1855 (Schiff: *Untersuch zur Physiol. des Nervensystems*, 1855, Bd. II, 147). Danzer cited thirty-eight references bearing upon the subject, but apparently missed R. M. Wilson's "The Hearts of Man," 1918, Starling's reference to it in his "Principles of Physiology," second edition, 1915, and Edward E. Cornwall's paper in the *Long Island Medical Journal* of December, 1924. Since Danzer pub-

lished his work at least two papers have appeared: Thomas C. Ely's study in the *MEDICAL TIMES* of April, 1930, and Edward E. Cornwall's important contribution in the *MEDICAL TIMES AND LONG ISLAND MEDICAL JOURNAL* of February, 1931.

Now what did Danzer prove by his series of experiments? He showed that the circulation is maintained not only by the classical and familiar factors, which in themselves are not fully adequate in any circumstances, but by the powerful intrinsic action of the vascular walls themselves. His decisive experiment consisted in the ligation of the bulbus arteriosus of the frog, whereupon there occurred in about ten minutes a tremendous filling and dilatation of the heart, ascribable to the active contractions of the peripheral mechanism, namely, the arterioles, capillaries and venules. Danzer visualized microscopically the steady stream of blood in the frog's web, tongue and nictitating membranes and he also observed oscillation of the corpuscular elements. In another experiment he clamped the aorta of a cat and observed that a capillary circulation persisted in the ear. Upon ligation of a frog's leg he observed that the capillary circulation was still maintained in the foot and that amputation did not stop it. He ligated a subcutaneous artery in a frog's leg, when the corpuscular stream could be seen in the capillary branches for some time afterward. In still another experiment a blood pressure cuff compressed the human brachial artery, whereupon the capillary circulation in the fingers continued for awhile. Danzer found that the peripheral vascular dynamic mechanism could be inhibited by chloroform applied to the entire skin surface of the frog and by injury (shock) of the cord.

Bayliss, upon perfusing a frog's extremity with Ringer's solution saturated with carbon dioxide, noted an increase in the velocity of the blood to this part, undoubtedly due to the propulsive effect of the carbon dioxide. This work of Bayliss was reported in the *Journal of Physiology*, 1901, xxvi, 32.

Kautsky (*Pflüger's Archiv.*, 1918, Bd. clxxi, 386) quotes Mares as having exposed a frog to an atmosphere of carbon dioxide, whereupon "There occurred a constant weakening of the systolic contractions terminating in marked dilatation and cardiac paralysis. Although the cardiac force was constantly diminishing, some peripheral driving force kept constantly feeding blood into the heart, and this centripetal flow was maintained until there was no more blood left in the vessels."

We may conclude from the work of Bayliss and Mares that the carbon dioxide effect on the cardiovascular system consists of a systodiastolic action of the blood vessels associated with a marked swelling of the heart when the saturation is excessive. "It is apparent, then," writes Danzer, "that there is some dynamic force that keeps filling the heart after experimental aortic obstruction or exposure to carbon dioxide. That this force is not the cardiac vis a tergo, nor a momentum effect, has already been intimated. We believe that it is not a passive phenomenon, but an active driving vascular mechanism. Possibly it is the accumulation of carbon dioxide or other acids in the tissues following aortic ligation, which is accountable for the pumping mechanism of the peripheral vessels and the swelling of the

heart. The experiments of Bayliss, Schwartz and Lemberger (*Pflüger's Archiv.*, 1911, clxi, 149) and of Dale and Thacker (*Jour. Physiol.*, 1913, xlvii, 493), dealing with the effects of acids and carbon dioxide on vascular activity, make this conception not unlikely."

The work of Henderson and Lowe was prophetic of this new age of cardiovascular therapy (*Deut. Archiv. f. Exper. Patho. u. Pharmacol.*, 1905, iii, 48). Their experiments with caffeine upon the renal vein revealed that this drug causes a pulsatory activity of the vessels which is described as an "active pumping mechanism." Roberts also observed (*Eng. Jour. Physiol.*, 1922, lvi, 101) marked contraction and relaxation of the cerebral vessels after the intravenous injection of adrenalin in dogs.

So the elucidation of the reason why carbon dioxide with oxygen successfully combats the toxemia of pneumonia, shock, asphyxia, drowning phenomena, etc., and why, when absorbed by the skin in the Saratoga bath (and to some extent inhaled), it produces striking circulatory effects, is necessarily leading to a wide acceptance of the fact of vascular peristalsis as a commonplace in physiology and as an improved basis for therapy, both physical and pharmacological. The reason why, clinically, cardiac patients can be made to "carry on" very well indeed when the heart itself is obviously incapable of maintaining the circulation is becoming a less inscrutable problem.

The decrease in the pulse rate, the increase in the pulse pressure, the deeper but less frequent respiration, and the definite initial tendency for the blood pressure to rise (the so-called "half bath" diminishes pressure) are all regular concomitants of the Saratoga cardiac therapy and of carbon dioxide inhalation therapy, as in pneumonia. The significance of this parallelism, after what has been said about vascular peristalsis, is obvious enough.

Groedel declared in an address at the Buffalo Academy of Medicine (December 18, 1931) that the most striking effect of the bath is the increase of the diuresis, especially in cases of latent or actual edema. "Such cases in the first days of the treatment pass as much as one or two excess liters of urine." The effect of the bath upon vascular peristalsis is the obvious explanation of this "striking" effect.

The carbonic acid gas bath, at properly adjusted temperatures, is also utilized very successfully for its effect in neurasthenia, gout, muscular "rheumatism" and convalescence following acute or chronic disease. It is especially useful in dealing with the endocrine depression following influenza and so characteristic of that infection. In this form it is known as the mineral water bath. Improved vascular peristalsis means improved metabolism and elimination.

The Saratoga neurovascular training benefits many nervous disorders. After a brief period in the electric light cabinet the circular douche and fan douche are employed (Baruch control apparatus), drying being accompanied with friction.

With respect to the internal use of the Saratoga waters, Geyser is an alkaline and chalybeate (complex ferrous iron) agent, useful in the treatment of various gastric, hepatic, duodenal and biliary disorders, of anemia, and of conditions associated with deficiencies of the alkaline reserves of the body, notably gout, arthritis

(Concluded on page 256)

Cancer

Department Edited by JOHN M. SWAN, M.D. (Pennsylvania), F.A.C.P.

EXECUTIVE SECRETARY, NEW YORK STATE COMMITTEE OF THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER.

Assisted by CHARLES WILLIAM HENNINGTON, B.S. (Rochester), M.D. (Hopkins), F.A.C.S., *German Literature Editor*, and UMBERTO CIMILDORO, A.B. (Cornell), M.D. (Rome), *Italian Literature Editor*.

The Precancerous Lesions of the Female Genitalia

GEORGE M. GELSER, M.D.

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PRE-CANCEROUS lesions of the vulva comprise two groups: first, lesions which project from the surface, such as fibromata, papillomata, condylomata, etc. These lesions are entirely benign, but repeated and prolonged irritation from constant rubbing may result in the production of malignant lesions. Treatment of these lesions consists in surgical removal, fulguration or electric coagulation. The second group consists of a group of lesions of the vulva characterized by a leukodermic condition of the skin and mucous membrane, such as senile atrophy, kraurosis, leukoplakia, etc. The lesion here is a sclerotic change in the cutis of the vulva with an increase of connective tissue in the subcutis and a disappearance of elastic fibers and pigment. The result of this is that the surface of the vulva becomes white and parchment-like, and is easily fissured. In the advanced stages it may have the consistency of leather. The etiology is not always clear. Probably it is related to senile changes, but it is also probably the result of long continued irritation caused by discharges which by their chemical action alter the structure of the vulval cutis.

The symptoms consist chiefly of intolerable itching, irritation and fissuring of the skin. The irritation, aggravated by constant scratching, may be the starting point for malignancy of the vulva. Some of these cases are relieved by ovarian extract, many more by X-ray therapy; but in advanced cases which are not relieved by irradiation the treatment should be surgical excision of the vulva if the process has not involved too much of the vestibule and vaginal introitus.

One of the best examples of a precancerous lesion is found in the uterine cervix. Cancer of the cervix is distinguished among other malignant neoplasms of the body by having a very constant and definite etiologic factor in its histogenesis, in that it occurs almost exclusively in cervixes that have had some inflammatory or traumatic lesion, usually the result of childbirth. It is variously estimated that from 96.5% to 98% of women with cancer of the cervix have borne children and that the greater majority have been multiparous. Experience and statistics would seem to indicate that chronic irritation resulting from cervical laceration, in-

fection and ectropion constitutes the chief exciting factor in the production of cervical malignancy.

Very significant are the statistics from the Free Hospital for Women in Boston, published by Pemberton. In a series of 3814 trachelorrhaphies, 940 amputations of the cervix and 1408 cauterizations, a total of 5962 cases, covering a period of 52 years, only five are known to have developed cancer of the cervix; and these were in the trachelorrhaphy group.

In a total of 669 cancers of the cervix, twelve cases were found in which a cervical repair had been performed and none in which amputation or cauterization had been performed. Also Levin, in a series of 613 cervical carcinomas found only 2 in which a previous cervical repair had been performed. These figures would seem to indicate the value of cervical repair as a prophylactic measure in the prevention of cancer.

Whether the causative factor lies in trauma and the resulting scar tissue or in superimposed infection with its accompanying irritating discharge is not established; probably it is a combination of both factors.

The essential lesion in cervicitis is irritation produced by infection, most commonly a pyogenic infection after laceration of the cervix at childbirth. In the nullipara it may be produced by the gonococcus or by a non-specific infection.

As a result of infection the changes of inflammation soon appear. There is edema of the subepithelial stroma with outpouring of leukocytes and plasma cells; the bloodvessels dilate; the surface columnar and glandular epithelium becomes irritated so that glandular hypertrophy and distension occur, and the cervical secretion becomes increased in amount and of a mucopurulent appearance from admixture with inflammatory products. This increased inflammatory secretion, commonly known as leukorrhea, always retains its thick, viscous tenacity and in general leukorrhea is nearly always a sign of cervical infection.

Partly as a result of maceration by continual discharge, partly by being raised and devitalized by subepithelial edema and partly on account of trauma, a plaque of squamous epithelium surrounding the external os becomes separated and cast off in the discharge, leaving a raw surface surrounding the external os. The columnar epithelium from the cervical canal is more resistant and is seldom affected in this manner. On the contrary it is stimulated to grow outward and

(Concluded on page 260)

This contribution is a part of the Clinical Conference held at St. Mary's Hospital, Rochester, N. Y., in connection with the Eighth Annual Meeting of the New York State Committee of the American Society for the Control of Cancer, December 13, 1932. Leo F. Simpson, M.D., F.A.C.S., chairman of the conference.

Economics

Department Editor: THOMAS A. MCGOLDRICK, M.D.

CHAIRMAN COMMITTEE ON ECONOMICS OF THE MEDICAL SOCIETY OF THE COUNTY OF KINGS, BROOKLYN

An Autopsy on Specifics and Panaceas

STRIPPED of all accessory questions the real problem placed before the recent Committee on Costs of Medical Care was how to secure adequate medical care for all the people without increasing the present total amount expended for that purpose, how to vastly increase the amount of that care so that no person in the land would be deprived for any reason of any needed health measure or therapeutic aid, and finally how the doctors doing all the work would be properly remunerated. The problem, according to the committee, could be solved.

The answer was to apply the methods of Big Business. Organization was the thing. Group practice it was to be called. It is but fair to state that most of the committee's work was done before the present depression and when Big-Business methods were regarded with some respect. Patients under the group plan would be corralled or registered at selected centers and certain times. Doctors, too, would be brought in numbers to these same places where, divided into special departments, they would await the sick. The direction of these places, the regulations governing them, and the details of administration would be in the control of boards on which some representation would be given to the profession, but the majority would be non-professional. Everybody registered at a center, whether he was sick or well, would pay or have paid for him a small fixed sum annually which would suffice for every possible need.

Most of the doctors, the research showed, were underpaid. The income then received did not bear a proper relation to the services they rendered, to say nothing of the capital they had invested. Many specialists received an average of \$10,000 a year, while the general practitioner received \$4,000. Of this \$4,000 the overhead expenses of the general practitioner were \$1,500, leaving a \$2,500 net. The specialist, too, had a heavy overhead but his net income was still too high while that of the general practitioner needed to be raised. How much was never stated. The increase would come from the reduction of that \$1,500 overhead. Removal of his office from his home or office building to a hospital or central location where it would be shared by many others, the reduction in number of lay and technical assistants, the avoidance of reduplication of laboratory equipment, the elimination of the telephone or the reduced cost of central stations, the relinquishment of private or individual automobiles—these and many other smaller items would so reduce his expenses that he would actually have more money. Moreover, he would do less work, the wearying irregular night and holiday work would be eliminated, he would have more time for scientific pursuits, he would learn to play, to enjoy the peace of mind of assured income and—so often stated—have long annual vacations.

The Committee did not seem to share the good memories of doctors. All their lives doctors have been showered with specifics and panaceas, many honestly proposed, others having nothing behind them but the

verbiage of supposedly advancing science, others urged by costly, respectable advertising or supported by someone's experience or emotions. Many promised much; very few showed value under proper trial. From the business world, too, doctors have listened for long to remedies for social and financial ills which were not relieved. The bankers on this Committee had no remedies for their own financial ills, and their banks suffered their full share. It is no wonder doctors grow cautious of new sure-cure remedies.

In recent numbers of the *Journal of the American Medical Association* there have been published some studies of actual group practice. These studies included 239 groups situated in eleven States. Very few of the groups have identical plans. The groups differ in size, in number of members, in locations served, in completeness of equipment, and in such methods of securing business as industrial contracts, solicitation of organizations and inducements to individuals. The overhead cost of conducting these clinics ranged from 35% to 50% of the gross income. Elsewhere it has been stated that in certain California groups where competition was keen the cost of securing new business alone reached 55% of the gross. In 152 groups the number of lay employees was 420 in addition to the trained and technical help.

As one would expect, the net income was not equally divided among the physicians, some receiving salaries that varied with their work, some receiving percentages of the profit and some getting salaries, percentages, commissions and ownership dividends. Group practice has had a very thorough trial in this country in the past fifteen years yet the number of clinics is not increasing. While the number of doctors practicing medicine has markedly increased in the past five years "the number of physicians entering these groups is 15% less."

It would not be correct to say that there are no conveniences in group practice as well as some disadvantages. Such evils as advertising and solicitation of patients might be restrained, just as individual doctors refrain from such methods, though the experience with certain Foundation clinics and health extension organizations in these respects does leave one uncertain. It is possible that corporate bodies, though no responsible doctor were in direct charge, might be as ethical as individual doctors. It is possible that corporate bodies in group practice would not become as soulless as Big Business. It can not be denied that in some localities a few men well known to one another, with similar views of right practice and finance in medicine, may, with mutual benefit, combine to secure or furnish needed facilities for better medical results, but the appeal for group practice on the ground that it brings increased income for doctors by reduction in their expenses will not excite many members of the medical profession.

Contemporary Progress

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Rhinolaryngology

Ozena

C. W. Trexler (*Laryngoscope*, 43:369, May, 1933) notes that there are many theories in regard to the etiology of ozena, all of which merit careful consideration. The belief that bacteria play the chief rôle in the etiology of ozena has been steadily growing. The predisposing cause is some constitutional factor, possibly hereditary, endocrine, or trophoneurotic. In the treatment of 135 cases of ozena the author has used the "mixed capsule bacteria vaccine" of Marschik and Busson; this is made of three organisms commonly found in the nasal secretions of ozena patients, each of which has a capsule (*B. mucosus*, *B. rhinoscleroma* and *B. pneumoniae* Friedlander). Most of these patients came under observation when the disease had become progressively worse for several months. The vaccine is given in increasing concentrations; the number of injections varied with the severity of the case and the patient's tolerance to the treatment; the largest number of injections given was 102; some of the patients are still under treatment. Of the 135 cases treated, 10 have been entirely cured, the nose becoming absolutely normal; 99, or approximately 80 per cent., show marked improvement; 14 cases have not improved; the remainder are still under treatment. Of the 99 cases that show definite improvement crust formation and odor have been diminished in all; 92 are entirely free from odor; the atrophy has shown the least degree of improvement. Several of the cases that were cured or much improved did not show definite improvement until after the fiftieth injection.

Guns and Picard of the University of Lausanne (*Annales d'otolaryngologie*, No. 3:293, 1933) report a biopsy study of tissue from the region of the inferior turbinate in 13 cases of ozena, before treatment. The characteristic changes were found to be: A thinning of the epithelium; and a transformation of the normal columnar epithelium into stratified pavement epithelium, with definite cornification in 7 of the 13 cases; the presence of an exudate in the layer immediately below the epithelium, consisting chiefly of mononuclear cells with numerous plasmocytes and some eosinophiles. The mucosa showed inflammatory changes in the blood vessels and the glands were always markedly atrophic and in some cases had entirely disappeared. From these findings, the authors conclude that the inflammatory exudate is the chief factor in causing the atrophy of the glands and the changes in the epithelium; but it may be that circulatory and trophoneurotic disturbances cause primary changes in the glands. In treatment of ozena, the authors found rapid improvement resulted from treatment with various vaccines, but that it was only temporary. As acetylcholine has been found to cause dilatation of both the blood vessels and the glands, local applications of this drug were used in the treatment of ozena, and this treatment alone brought about marked improvement or cure in 75 per cent of cases with disappearance of the crusts and the odor; the dryness of the nose was relieved by the reactivation of the glands, even if the epithelium did not return entirely to its normal state; in another 15 per cent, the association of pilocarpine by mouth with acetylcholine resulted in cure; while 10 per cent. required operation by Lauteaschneger's method as modified by Halle.

Histiocytes in Inflammation of the Accessory Sinuses

R. A. Fenton and O. Larsell (*Laryngoscope*, 43:233, April, 1933) report a study of the effects of various substances locally applied to the sinuses in experiments on cats and in human subjects, with special reference to the histiocytes. In the

animal experiments it was found that soap jelly, thin and thick glucose, coconut oil with agar, chondrus jelly, mucilage of tragacanth and scarlet red with oxyquinoline sulphate produced destructive changes. Certain cations, such as calcium hydroxide (5 per cent. in 0.5 per cent. agar), calcium lactate (1 per cent. in 1 per cent. gelatin) and sodium phosphate (1 per cent. in 2 per cent. gelatin) produced a notable increase in histiocytes in the sinus mucous membrane in spite of loss of cilia and more or less epithelial damage. In human subjects with apparently equal involvement in both antra, one antrum was washed with milk of magnesia, the other with physiological saline once or twice weekly for two months before radical operation was done. Study of the mucous membrane removed at operation showed: on the magnesia side, edema with numerous perivascular eosinophiles, fairly numerous histiocytes and some fibroblasts; on the saline side, much more marked edema, with lymphoid infiltration, loss of cilia and of epithelial patches, few histiocytes and no eosinophiles. These studies indicate that the local use of solutions or suspensions of alkaline earth salts or hydroxides (calcium, magnesium) favors the mobilization of histiocytes in acute inflammation of the sinuses. Oily and colloid substances are destructive of epithelium and favor infection by impairment of ciliary action, resulting in invasion of the subepithelial tissue by polymorphonuclears without any increase in the number of histiocytes. The chlorides favor edematous changes and increase of lymphocytes.

Diagnosis and Treatment of Sinus Disease by Displacement

J. R. Frazee (*Archives of Otolaryngology*, 17:554, April, 1933) reports the use of the displacement method for the diagnosis and treatment of the nasal sinus disease described by Proetz of St. Louis. This method depends upon displacement of some of the air in sinus cavities by suction applied to the nostril, and replacing it by fluid brought into contact with the ostium when the vacuum is released. For diagnostic purposes a radiopaque fluid is used—in the cases reported, iodized poppy-seed oil, 40 per cent. in olive oil; for therapeutic purposes a medicament is used. For this purpose the author usually employed 0.5 per cent. ephedrine in physiological sodium chloride solution; in some cases a phenolized alkaline solution, introduced into one nostril and withdrawn by negative pressure from the other, was used to cleanse the nasal cavity. In diagnosis, the author found, this method did not give results any better than the usual Roentgen-ray examination. But in treatment, it proved more effective than sprays and nasal packs; 45 per cent. of patients with nasal sinus disease showed marked improvement, and 18 per cent. slight improvement. Of 13 cases of atrophic rhinitis treated by washing out the nasal cavities with alkaline solution and instillation of oil and glycerine into the sinuses, 5 showed marked improvement, one slight improvement, and 5 had but one treatment each.

The Color of the Nasal Septum

L. B. Bernheimer and David J. Cohn of Michael Reese Hospital, Chicago, (*Journal of the American Medical Association*, 100:1324, April 29, 1933) report a study of the color of the nasal septum in relation to the acid-base balance of the body, in which they have been unable to substantiate the theory of Jarvis and his associates as to the importance of this factor. They found no correlation between the color of the nasal mucosa and the clinical symptoms in 50 critically ill patients with symptoms of acidosis with hyperpnea, dehydration and acetoneuria. In 100 normal subjects and in 20 patients with various diseases, but with normal acid-base balance, all three types of nasal mucosa were found—pale, nor-

mal pink and scarlet red. Age, atmospheric conditions, type of complexion and other nonpathological factors, as well as alcoholism and body temperature were found to affect the color of the nasal septal mucosa. The use of diets high in foods producing alkaline or acid metabolic products, together with the corresponding alkaline or acid drug therapy, had no effect in the cases studied on the symptoms of patients with allergic nasal or respiratory diseases or with malaise or insomnia; or on the color of the mucosa of the nasal septum in these cases.

Light Treatment in Tuberculosis of the Larynx

A. J. Cemach, of Vienna (*Journal of Laryngology and Otology*, 48:326, May, 1933) reports the use of local light therapy in laryngeal tuberculosis, by means of a small quartz lamp in the form of a laryngoscope. This should be combined with systemic sanatorium treatment to increase the general resistance. The chief value of light therapy is in the ulcerative form of laryngeal tuberculosis. When the ulcerative destruction is inhibited by this means, the cautery may be used for removing infiltrations, as such infiltrations are "torpid, inclined to calcify, and consequently refractory to the action of light."

Otology

Role of the Epidermis in Suppurations of the Middle Ear

J. G. Druss (*Archives of Otolaryngology*, 17:484, April, 1933) presents a study of the rôle of the epidermis in repair and in the etiology of chronic suppurations of the middle ear based on a review of the literature and on serial sections of 120 temporal bones. He finds that in acute infections of the middle ear after spontaneous perforation or myringotomy, the inflammation usually subsides and the perforation closes within three to twenty-one days. But in cases in which this healing process does not occur the epidermis plays an important part in the continued suppuration or in the continued patency of the perforation. Not infrequently the epidermis grows over the margins of the perforation onto the inner aspect of the tympanic membrane, sometimes extending to other portions of the tympanum, usually growing on an inflamed surface where the mucosa has been partially or wholly destroyed. Such ingrowths of the epidermis take place more frequently with marginal than central perforations. The "struggle" between the mucosa and the epidermis may be the cause of chronic suppurations, continuing for years, as the products of excretion of one type of epithelium act as foreign irritants to the other and prolong the discharge. After the epidermis has grown into the middle ear and antrum it continues to desquamate; if the escape of the dead cells from this desquamation is cut off, this results in pressure on the epidermal matrix with resulting expansion of the matrix and formation of cholesteatoma. If the growth of the epidermis extends only to the margin of the perforation, proliferation of connective tissue from the proprial layer of the drum may occur, or a polyp may be formed at this site. The epidermization may not be limited to the tympanum but may extend to the attic and antrum if these cavities communicate with the tympanum. In the treatment of chronic suppurations of the middle ear, "each case is a problem of itself;" it should be remembered that the appearance of the epidermized tympanic cavity does not always indicate the condition of the underlying structures, and patients apparently cured should be kept under prolonged observation.

Dry Treatment in Acute Infections of the Ear and Mastoid

H. B. Blackwell (*Laryngoscope*, 43:390, May, 1933) describes his method of dry treatment for acute infections of the middle ear and mastoid. It consists in incising the membrana tympani and placing a narrow plain gauze drain down to the drum, packing the canal lightly. After one-half to three hours, this is removed, the canal wiped free of clots, usually with a little peroxide, and the drain reinserted; this is repeated two to three times every twenty-four hours depending on the amount of discharge. In some cases a small quantity of boric acid powder is insufflated prior to placing the drain. The author is of the opinion that the gauze drain has some capillary attraction in securing drainage. The author has used this method for three years in private and hospital practice and has become convinced of its value. In a number of cases with mastoiditis previously treated by irrigation in which operation appeared to be indicated, the discontinuance of irrigation and institution of the dry treatment resulted in recovery without mastoidectomy in more than half

the cases. The author does not oppose irrigation in all cases of acute infections of the middle ear and mastoid; in some instances gentle irrigations combined with the dry treatment are of definite value; but he does oppose "indiscriminate irrigation" in all cases.

Otitis Media in Scarlet Fever

F. Rade (*Folia oto-laryngologica*, 24:126, May, 1933) reports that in 1925 to 1929, there were 2,835 cases of scarlet fever at the Medical Academy in Düsseldorf. Otitis media developed in 359 cases, or 12.64 per cent. While the incidence of scarlet fever was highest in March and October, the incidence of otitis as a complication was highest in February, April and June. The incidence of scarlet fever otitis was highest in those years in which the most extensive epidemics occurred. In regard to age incidence, the incidence of scarlet fever was highest in children three to eight years of age, but the incidence of otitis as a complication highest at two to three years of age (28.64 per cent.). The frequency of otitis as a complication diminished gradually after the age of three years, and was only 3.12 per cent. at twelve to fourteen years of age. Of the 359 cases with otitis, 65 developed some other complication. There were 41 deaths in the entire series, and of these cases, 8, or 19.5 per cent., developed otitis, but in only one case was death due to the sequela of the ear infection. The treatment of otitis media complicating scarlet fever is the same as in other types of middle ear infection. In this series of cases, the infection subsided under conservative treatment in 96 cases, or 26.7 per cent., spontaneous perforation of the drum occurred in 156 cases, or 43.4 per cent.; paracentesis was done in 96 cases. In 23 cases with mastoiditis antrotomy was done, and a radical operation in 2 cases with a severe type of otitis with necrosis. As a rule the otitis developed in an early stage of scarlet fever, 23.6 per cent. in the first three days; mastoiditis developed in these early cases as well as in late cases.

Complications of Otitis Media without Rupture of the Membrana Tympani

A. A. Love (*Archives of Otolaryngology*, 17:297, March, 1933) finds from his own observations and a review of reported cases in which complications developed in acute middle ear infection without rupture of the membrana tympani that the cases are of three types: 1. Unrecognized otitis with mastoiditis, recognized or unrecognized. 2. Minor otitic symptoms and marked mastoiditis. 3. Fulminating intracranial complications consequent to unrecognized otitis and mastoiditis, with either single or multiple intracranial lesions. Nine cases are reported, illustrating these various types; 5 of these, one with severe fulminating mastoiditis, and 4 with intracranial complications were fatal. Such cases are more common in children than in adults. The causes of failure in diagnosis are chiefly: An insufficient history; failure to associate distant manifestations with an otitis; lack of proper evaluation of minor changes in the external canal and ear drum; insufficient follow-up of cases potentially dangerous.

Electric Thermoscope in the Diagnosis of Acute Mastoiditis

J. Daley (*Archives of Otolaryngology*, 17:679, May, 1933) notes that while the majority of cases of acute mastoiditis present no difficulty in diagnosis, there are some atypical cases in which diagnosis is uncertain, but delay in operation may be dangerous. For purposes of diagnosis in such cases, the author has designed an instrument for the thermo-electric method of measuring temperature and of determining a differential temperature between two points—a thermocouple—which he calls the electric thermoscope. By means of this instrument, which is small and portable, differential reading of the two points to be tested can be obtained immediately. In unilateral middle ear infection, the normal tympanum is used for comparison with the tympanum of the involved ear; with bilateral involvement, the mouth is used for comparison with the tympanum of the ear to be tested. If on repeated tests, a persistent plus reading is obtained for the ear tested, the infection is not resolving and the mastoid bone is undergoing pathological change. If the differential temperature drops steadily, the infection is subsiding. The author has used this method for two years in many cases, and is now beginning to use it as a routine in all acute otitic infections to determine the course of the infection.

Recurring Mastoiditis

N. E. Lacy (*Annals of Otology, Rhinology and Laryngology*, 42:526, June, 1933) notes that an operation for acute mastoiditis may be successful in the cure of the acute condition, but does not necessarily prevent a recurrent infection of the

mastoid process. This recurrent mastoiditis may be more dangerous than the primary infection, since the natural anatomic barriers may have been altered by the first operation. Yet medical literature presents few studies of recurrent mastoiditis. The author has made a study of 29 cases of recurrent mastoiditis seen in the Department of Otolaryngology of the University of Kansas School of Medicine, with special reference to the extent of damage done to the mastoid antrum and the methods of postoperative care at the first operation. In 21 of the 29 cases, the first as well as the second operation was done at the University hospital. In 17 of the cases in which definite records were available, the mastoid antrum was enlarged at the first operation by removing a part of the surrounding bone or the lining membrane was curetted; in 7 the antrum was treated conservatively. In 11 cases a large cavity was found in the mastoid process at the second operation, which was lined by a continuation of the mucosa of the antrum; in 10 of these the antrum had been enlarged at the first operation. In the 24 cases in which postoperative treatment was recorded, 12 had been treated by the open method without sutures, and 12 with closure of the upper end of the incision with sutures. The evidence in these cases indicates that in the mastoid operation the antrum should be traumatized as little as possible consistent with good surgery; this method of postoperative treatment appears to be of little importance provided it results in complete filling of the mastoid cavity from the antrum to the surface. Recurrences of mastoiditis are apparently due to outside pathological circumstances, rather than to faulty surgery.

Gynecology

The Isthmus Uteri

O. Frankl of Vienna delivered an address on the isthmus uteri before the British Congress of Obstetrics and Gynecology in April (*Journal of Obstetrics and Gynecology of the British Empire*, 40:397, May, 1933) in which he summarized his conclusions in regard to the physiology and pathology of this section of the uterus, based on a five-year study. The isthmus uteri he defines as "the hollow space in the cranial part of the cervix, the mucous membrane of which resembles that of the corpus without being identical with it either morphologically or physiologically. The mucous membrane of the isthmus differs fundamentally also from that of the larger caudal segment of the cervix." Frankl has found that the mucous membrane of the isthmus differs sufficiently from that of the corpus so that if the uterus is carefully opened and the mucus membrane preserved, the upper as well as the lower limit of the isthmus can be distinguished with the naked eye. In the normal menstrual cycle, the chief difference between the isthmus and the corpus uteri is that no predecidual compacta is formed by the mucous membrane of the isthmus; there is also much less change in the mucous membrane of the isthmus than in that of the corpus throughout the menstrual cycle. In the earliest stage of pregnancy the difference in these two mucous membranes persists but by the third month it has disappeared, and the whole isthmus portion forms a part of the ovum chamber. A study of the blood supply also shows that the isthmus is supplied from its own group of blood vessels arising from the arteria uterina. Pathologically, the isthmus is rarely involved in hyperplasia or adenomyomatous changes observed in the corpus. This, the author believes, is due to the fact that the mucous membrane of the isthmus does not react to hormonal stimulation. The isthmus is involved in chronic inflammatory changes involving the corpus and in tuberculosis. It appears to offer a certain resistance to carcinoma of the corpus, as the neoplasm often ends at the upper limit of the isthmus, but eventually the carcinoma invades the isthmus.

A Possible Etiology of Uterine Fibroids

J. T. Witherspoon (*Surgery, Gynecology and Obstetrics*, 56:1026, June, 1933) discusses the various theories in regard to the etiology of fibromyomata of the uterus, and comes to the conclusion that the evidence presented by various investigators indicates that "the unopposed action of estrin in the absence of corpus luteum influence is the cause of hyperplasia of the endometrium." On this basis the author suggests the hypothesis that if this unopposed action of estrin is sufficiently prolonged, fibromyomatous growths result. He presents an analysis of 26 cases of hyperplasia of the endometrium in which operation was done and the diagnosis of such established, and in which after an average interval of four years and four months, a second operation was performed for fibromyomata. At the second operation, both ovaries were removed and examined in 13 cases; all the

remaining ovarian tissue was examined in 5 cases; and one ovary was removed and examined in 8 cases. In all 26 cases follicle cysts were present in the ovary; in 24 cases no mature corpus luteum could be found; in 2 cases a corpus luteum in the developmental stage. In a second group of 83 patients in which hysterectomy was done for fibroids, both ovaries or total ovarian tissue were examined in only 42 cases, but one ovary was examined in the remaining 41 cases. Follicle cysts were found in the ovaries in all 83 cases, degenerating corpus luteum in 10 cases, no corpus luteum in 73 cases. In a third group of 41 cases of fibroids and hyperplasia, the ovaries were not examined microscopically, but the surgeon noted follicle cysts of the ovaries at operation in every case. The findings in this series of cases, therefore, support the author's hypothesis that: The unopposed action of estrin on the uterus results in immediate changes in the endometrium characterized by hyperplasia, and in more latent pathological changes of the nature of fibromyomatous growths.

Treatment of Menstrual Irregularities

W. Shaw (*British Medical Journal*, 1:907, May 27, 1933) discusses three types of menstrual irregularity without gross lesions in either the uterus or the ovaries. These types are epimenorrhea, i.e., too frequent menstruation sometimes accompanied by excessive loss of blood; metropathia hemorrhagica; and hypomenorrhea. In epimenorrhea the author has given both anterior pituitary hormone and estrin, but without result; and in this condition, he is of the opinion that hormone therapy is not indicated, as the aim is to inhibit rather than stimulate ovarian activity. In older women the production of an artificial menopause by radium gives good results, but in women under forty the menopausal symptoms are too severe. In metropathia hemorrhagica the administration of anterior pituitary hormone to stimulate the production of corpora lutea is rational therapy, but in the author's hands it has not given the encouraging results reported by others, especially by American authors. Radium also has not given good results in these cases. In both these conditions, if the loss of blood is sufficient to cause anemia, hysterectomy with conservation of the ovaries is indicated. In hypomenorrhea, organotherapy with estrin or anterior pituitary hormone is theoretically indicated; the author has had better results with the pituitary hormone than with estrin, but not entirely satisfactory results with either. In some cases dilatation of the cervix is effective.

Viability of Fragments of Menstrual Endometrium

S. H. Geist (*American Journal of Obstetrics and Gynecology*, 25:751, May, 1933) reports a study of the viability of fragments of the uterine mucosa discharged in menstrual blood. It was found that menstrual blood collected as it escaped through the cervix, and aspirated through a capillary test tube, contained endometrial cells, which the staining reactions demonstrated to be living. These findings indicate that the theory that endometriosis is due to retrograde transportation of menstrual fragments through the Fallopian tubes and implantation in the peritoneal cavity is a possible one, since the tube used for aspiration in these experiments had a lumen one-third that of the Fallopian tubes, and the endometrial cells were living after passing through this tube. The fact that these cells are living after being discharged in the menstrual blood also indicates that desquamation of the mucosa in menstruation is not due to a local necrosis, as necrosis implies the death of the cells.

Ovarian Tumors of Thyroid Tissue

J. C. Masson and S. C. Mueller (*Surgery, Gynecology and Obstetrics*, 56:931, May, 1933) report 6 cases of ovarian tumor operated at the Mayo Clinic in which pathological examination showed that the tumor contained large amounts of thyroid tissue; in one case there were nodules of hyperplastic thyroid tissue present. Three of these tumors were analyzed for iodine, and from 0.011 to 0.105 per cent. found. None of these tumors showed malignant changes, but ascites was frequently a symptom. Four of the patients showed symptoms of mild hyperthyroidism, which may have been due to the thyroid tissue present in the ovarian tumor; one patient who showed frank hyperthyroidism had definite hyperplasia of the thyroid gland, and only a small nodule of thyroid tissue in the ovarian tumor. From a review of the literature and their own observations, the authors conclude that ovarian tumors of thyroid tissue are of the nature of teratoma.

(Concluded on page 259)

Medical Times

& LONG ISLAND MEDICAL JOURNAL (CONS.)

A Monthly Record of Medicine, Surgery
and the Collateral Sciences

ESTABLISHED IN 1872

EDITED BY

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SUBSCRIPTION RATES—(Strictly in Advance)

UNITED STATES AND POSSESSIONS	\$2.00 per year
CANADA AND FOREIGN COUNTRIES IN POSTAL UNION	\$3.00 per year
SINGLE COPIES, 25 CENTS	

Notify publisher promptly of change of address or if paper is not received regularly. Remittances for subscriptions will not be acknowledged but dating on the wrapper will be changed on the first issue possible after receipt of same. All communications should be addressed to and all checks made payable to the publishers.

ROMAINE PIERSON PUBLISHERS, INC.

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Published at East Stroudsburg, Pa., with executive and editorial offices at 95 Nassau St., New York, N. Y.

All Exchanges and Books for Review, Address:
1313 Bedford Avenue, Brooklyn, N. Y.

NEW YORK, AUGUST, 1933

A Great American Spa

Hydrotherapy at Saratoga Springs is now moving steadily toward a goal which will be unrivalled by the European spas. The scientific aims of its sponsors are impressive and the plans for a research unit comprehensive. Large-scale development at Saratoga has been hampered somewhat, for one thing, by a lack of the European tradition regarding spas of the higher order, except on the part of highly intelligent minorities recently established here and bringing with them more or less of their Continental cultural heritage. This lack must be met by a more definite inclusion of hydrotherapy of this type as part of our public health educational measures.

It is not strange that the therapeutic results of the Saratoga bath in the old days should have been ascribed by simple folk to magic, as when, in 1767, Sir William Johnson was carried by the Indians to the sacred spring at High Rock, gift of the Great Spirit, and departed in good health to resume that remarkable career signalized by great victories in war, by actual sachemhood in the Mohawk tribe, by the creation of a fortune perhaps greater than that of any other colonial, by the acquisition of an Indian harem and innumerable children, and

by a vital part played in laying the foundations of the great Republic that was soon to be. One sees from this that the aristocratic European tradition was then operative in Johnson and that he applied it in America to his own decided personal profit. The Indians were used simply as window dressing by this master showman, as on many other colorful occasions in his life.

Sometimes the sophisticated use another word for magic. They talk about radioactivity. Now while it is a fact that the waters' radioactivity is attested by the United States Bureau of Mines, it is of so slight a degree that no therapeutic effect could possibly accrue from it, and we are not at all sure that a high degree of radioactivity, in the light of recent knowledge, would be a desideratum.

For ourselves, the physiologic rationale of the Saratoga baths, as worked out by such giants in balneology as Simon Baruch, that great pioneer figure in the annals of American hydrotherapy, supplemented by new knowledge in this particular sphere, suffices to account for their striking effects.

In this issue we present a study of how the new science and this old art have felicitously met at Saratoga.

An Untapped Source of Revenue for Our Hospitals

As is well known, a substantial portion of the proceeds from the Irish Sweepstakes is donated to the hospitals of the Free State.

Why should we not have an American Sweepstakes for exactly the same purpose?

Despite the present law, it is conservatively estimated that a total of \$68,000,000 is bet annually in New York State upon horse racing. People bet *now*, but neither the State nor the hospitals derive any benefit from the fact. The economic and moral situation thus closely parallels the prohibition hypocrisy.

Legalization is, of course, near. One branch of the Legislature passed such a racing bill this year.

If revenue from such a source is good enough for Ireland it is good enough for us. Ireland, goodness knows, is a moral country; witness its piety and its censorship of books. This is surely precedent enough. And do not forget that the Sweepstakes is sanctioned by one of the best medical bodies in the world—the Irish profession. It has worked satisfactorily there for all concerned. Certainly it would never occur to the Irish, a civilized people with an ancient culture, to apologize for their methods in this sphere. If the implications are peculiarly Celtic, well, let's all be Celts, in this matter at least, and to that degree perhaps more civilized than we are at present.

In any case, the need of revenue for our hospitals far outweighs puritanic inhibitions; now, indeed, is the time to give the latter their quietus forever.

The racing authorities and the Government would do well to make this proposal a reality. The adoption of the idea, which we believe would be strongly supported by public opinion, should insure the very aid sought for this sport. If all directly concerned frankly seek sanction for this idea, the way to the goal seems clear. Such people, in helping the hospitals in the manner proposed, will help racing.

The Art of Medicine

"In private practice we notice the idiosyncrasies of our patients; in a clinic we are apt to overlook individual reactions to disease," writes Thewlis.

In those few words is the whole story of the futility

of mass production methods in the practice of medicine.

Another writer recently phrased the matter equally well. He said that one cannot practice the art of medicine in a hospital ward.

That is by no means an indictment of the hospital, which has its distinct place in our medical scheme of things, with certain limitations. In the private room of the hospital one can approximate the art of medicine.

The mass production methods dreamed of by those who would socialize us would be the farthest possible departure from the art of medicine.

What, we wonder, would a Weir Mitchell, were he to come to life today, be able to make of the proposals of the uplifters?

The Lowered Birth Rate

Many are concerned that our birth rate is dropping; at the present time it is down to 16 per thousand. This seems rather strange when compared with Soviet Russia, where the rate is 43. In Russia sex matters are taught at the age of fifteen and contraceptive methods are not prohibited. Moreover, abortion is legalized; yet with all this they are nearly twice as productive as we are. The writer seriously doubts if there is any lessening of sexual intercourse in these United States of ours.

M. W. T.

Illegal Subpenas

On two occasions the writer has been served with illegal subpenas. Once as a witness in an accident case, the deputy-sheriff served the papers on Sunday, which is not legal. On the other occasion, a so-called server called and gave notice to appear in court as a witness in a will case. The lawyer signed his name on the paper, with "notary public" below his name and his seal on the left of the paper. This is one way to evade the payment of the sheriff's fees and if the witness is not wise to the game he will go to court. In order to be legal a subpoena must be signed by the clerk of the court and his seal must be on it. This is the only kind of subpoena that needs to be regarded. This trick is commonly practised and it usually works; many physicians have been fooled into court attendance for all day by this method. The lawyers are very clever. In one town a lawyer was the clerk of the court. When he wanted to "summons" anyone and evade the sheriff's fees, he signed his name on the paper, with his title "justice of the peace", and his seal as justice of the peace appeared on it. Of course, the trick was that he did not sign his name as clerk of the court but used another title. Whenever you are served with a subpoena be sure that it is legal. It will save you many hours of loafing in a stuffy court room.

M. W. T.

Befuddling the Nudists

There is quite a chorus today emanating from the authorities on the ultraviolet rays which seeks to warn more or less crazed devotees against excessive exposure. Most of these fanatics have been in all probability quite ignorant of any harmful possibilities in their beloved actinic baths. Such information as may seep into the brains of the nudists must disconcert these cranks quite a bit. To them it must seem like a practical joke of a tragical order when such warnings are promulgated. Certainly all the nudists do expose themselves excessively. They belong in the first place, most of them,

to the ailing category in earnest search of what to such people remains a will-o'-the-wisp—health. Far from being possessed by eroticism they seem, as a matter of fact, to be poorly sexed constitutional weaklings. Already seriously befuddled by life, they now have to take into account the injurious potentialities of the ultraviolet rays.

Well, they in themselves constitute a practical joke on society. Our chief grievance against them, we frankly confess, is that their type of behavior tends to take all the "kick" out of sex.

A Fond Illusion

The craze for reducing weight on the part even of undernourished girls and women may be traced to the influence of the seemingly slender figures of movie stars as projected on the silver screen. We say as projected, for Clifton M. Tuttle of the Eastman Kodak Company's research laboratories is our authority as to the optical falseness of such figures, for it seems that the apparent slenderness is due to distortion caused by the angle at which the picture is projected from the booth under the theatre roof at the back of the balcony. Tests have demonstrated the distortion.

The depression is supposed to have changed the situation somewhat, since the movie attendance has fallen off considerably.

It is by such chance factors, often hard to discover and correlate, that the lives and customs of the masses are oftentimes deeply colored. When such is the case, reasoning loses all force.

Beauty Culture

The trend of the day in facial decoration is toward the barbarous. An important factor, from the medical point of view, is the desire to conceal the evidences of indifferent health now so constant a feature of our machine civilization. Naturally ruddy youth, in the industrial world, is no more.

With rue my heart is laden
For golden friends I had;
For many a rose-lipt maiden
And many a lightfoot lad.

By brooks too broad for leaping
The lightfoot boys are laid;
The rose-lipt girls are sleeping
In fields where roses fade.
[A Shropshire Lad]

Ironically enough, at a recent "Beauty Convention" in New York City, one of the principally stressed themes was the justification of aids to "beauty" as means to disguise the sickly victims of the industrial world.

We register our conviction that, with increasing vulgarization, the time is not far off when the decorations and adornments will frankly take a more garish tone—when the cheeks will flame in bizarre designs and the painted savage be outdone. Paganism possesses the souls of these social units, barbarism claims the physical bodies.

Just The Thing

(Ohio State Journal)

"Singer proposes music to charm savage gangster." Chopin's Funeral March is suggested as most appropriate.

A Pleasant Party

(Toledo Blade)

Socially the League of Nations has been a success.

Miscellany

Ode to a Molar

Farewell old molar, who hath been my friend for many
and many a day,
Your time has come—so out you go
And with you foul deposits and decay.
No more you'll crunch the bacon
Or the juicy steak,
Or leave your light impression on muffins, rolls and
cake;
But soon, too soon, a jab of novocaine,
A twist, a jerk,
And then to some spittoon.

—C. B.

Going to Clinics

The medical profession is found to be suffering from the large increase in the number of the city's inhabitants using the services of clinics and dispensaries, a third of them paying nothing.

The United Hospital Fund reports that 1,500,000 persons a year are now using clinics and dispensaries at the hospitals. These made a total of 6,688,215 visits last year. This total is to be compared with one of 4,183,933 visits in 1927.

The enormous growth of such patients caused a deficit of \$1,283,621 in the clinic services of forty-eight of the institutions represented by the United Hospital Fund last year.

While the depression undoubtedly accounts for the greater part of the annual increase of clinic patients, the rise has been steady since 1927. It is accounted for by poverty and by the growth in hospital facilities and the improvement of services. It would be difficult to estimate to what extent the rise is due to the growth of the clinic idea—the idea of a small hospital, so to speak, where all troubles can be treated promptly and reasonably.

But whatever the reasons, the phenomenon is of the first order when 1,500,000 persons—one in every four or so in the city—go to clinics for medical care in a year. This proportion is more staggering when it is seen that a considerable percentage of the people have no medical attention at all.

The fact that 500,000 of the 1,500,000 pay nothing for their services is itself a commentary of major importance upon our times and upon the extensiveness of abject poverty in the potentially opulent machine age.

The drift of the patients to the clinics is depriving office physicians of patronage they once enjoyed. Is the drift permanent? What does it mean in terms of socialization? Such questions take on particular force in view of the revolutionary developments of a "New Deal" policy operating amid a depression which in itself is revolutionary.

—New York World-Telegram.

New Hazards of Travel

(Atchison Globe)

Traveling is to become more dangerous for men. An Eastern railroad will employ young ladies to be waitresses on the dining cars.

A Definition

(Jacksonville Times-Union)

A vacuum is nothing shut up in a bottle with the cork in. As an example: Three-two beer.

Items of Interest

SIXTH ANNUAL GRADUATE FORTNIGHT OF THE NEW YORK ACADEMY OF MEDICINE

*A Postgraduate Two Weeks Devoted to Metabolic Diseases
October 23 to November 3, 1933*

"Disorders of Metabolism"

The program comprises afternoon clinics, evening meetings, and a scientific exhibit.

I. HOSPITAL CLINICS

Specially arranged clinical programs will be presented in fifteen of New York's leading hospitals.

II. EVENING SESSIONS

The subjects and speakers at Academy meetings will be: Total energy exchange in relation to clinical medicine, Eugene F. DuBois; The metabolism of fever, Harold E. Himwich; Metabolism in hyperthyroidism and hypothyroidism, Walter W. Palmer; The surgical treatment of hyperthyroidism, Frank H. Lahey; Acidosis and alkalosis, Donald D. Van Slyke; Mineral metabolism, Joseph C. Aub; Fluid distribution and edema, A. Ashley Weech; Dehydration and medical shock, Dana W. Atchley; Congenital anomalies of metabolism with special reference to cystinuria and myopathies, Erwin Brand; On the disturbances called "gouty" and their treatment, Emanuel Libman; Round Table Conference on diabetes mellitus, Rollin T. Woodvatt, Priscilla White, Nellis B. Foster, Herman O. Mosen-thal, William S. Ladd, H. Rawle Geyelin; Clinical and biologic considerations of obesity and certain allied conditions, Albert A. Epstein; A critical estimate of the value of laboratory procedures in disorders of metabolism, John P. Peters; General review of our present knowledge of vitamins, H. C. Sherman; Disorders due to moderate deficiency of vitamins, Samuel W. Clausen; Discussion of last two papers, Alfred F. Hess and Lafayette B. Mendel; The influence of the diencephalon and hypophysis upon general autonomic functions, Wilder Penfield; Non-diabetic ketosis in children. Dehydration in infants, Oscar M. Schloss; Hyperparathyroidism and its relationship to diseases of bone, Henry L. Jaffe; Metabolic disturbances in relation to the teeth, Charles F. Bodecker.

III. SCIENTIFIC EXHIBIT

An extensive scientific exhibit bearing upon the various aspects of the general subject will be held at the Academy concurrent with the Fortnight and for an added week thereafter. Lecture demonstrations at regular intervals will be given by many of the exhibitors. A complete program and registration blank will be mailed on request.

Henry Dwight Chapin

At the Commencement exercises at Columbia University on June 6th, President Butler presented the University Medal for excellence awarded to Dr. Henry Dwight Chapin in recognition of his outstanding contribution to problems relating to the care of children, and in recognition of his pioneer work in Hospital Social Service.

American Congress of Physical Therapy

The American Congress of Physical Therapy announces its twelfth annual scientific and clinical session which will be held September 11 to 15, 1933, at the Palmer House, Chicago.

Each year these annual gatherings have increased in popularity. This is due to the splendid programs which are offered. This year efforts have been doubled to present a program which will appeal to every physician and technician engaged in the application of physical measures. Clinics and addresses deal with a variety of subjects, from the very fundamental to the more advanced. A large number of research reports will be made by prominent leaders in the field.

Physicians are urged to plan their vacations for this September session. The Century of Progress Exposition and this twelfth annual meeting of the Congress will make a week's stay in Chicago profitable and interesting.

As an unusually large attendance is anticipated those who plan to attend should make their hotel reservations as early as possible. Preliminary programs will be mailed on request. Write to the Executive Secretary, American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago.

Internships in Army Hospitals

The Surgeon General has recently notified appointees to internships in army hospitals that, as a part of the federal economy program, these positions have been abolished and appointments canceled.

The New Deal at Saratoga

(Concluded from page 247)

tis, neuritis, etc. In states of "subacidosis" and where ketogenic factors may be at work, as in diabetes, this water may serve a good purpose. Coesa is mildly laxative, antacid and diuretic; it is helpful in disorders of the gall-bladder. Hathorn is strongly laxative. The essential difference between these waters—saline and alkaline—lies in the ratio of the constituents, which are identical in kind in all instances. We have named only the leading waters; there are a number of others. The appended tables will give a clear idea of the similarity and range of the constituents.

Baudisch and Davidson (*Archives of Internal Medicine*, Vol. 40, pp. 496-520, October, 1927: "Natural Mineral Waters in the Light of Modern Research") of the Rockefeller Institute have stressed the fact that the physicochemical properties of the Saratoga waters are retained for only a short time after their appearance at the surface of the spring unless oxygen and light are excluded, which explains the greater therapeutic activity of water at the spring in contrast to aged water. Modern bottling processes at the springs now take these facts into account successfully. The effect of oxygen and light is to oxidize the complex ferrous iron, characteristic of the Saratoga waters, to the ferric form, thereby causing precipitation and loss of catalytic properties (peroxidase or catalase activity). This complex form of iron is apparently identical with the form in which iron salts exist in the blood, for all the reactions of the well-known blood tests for iron are given by the Saratoga waters. These researches indicate that the Saratoga waters cannot be reproduced artificially, that specific therapeutic benefits are derived from their use, and that the chemical composition of the salts concerned should not alone be stressed but also the structure of the reacting substances.

So the internal use of these waters is a matter of art, like so much else that is worth while in medicine. Dr. McClellan cautions against the use in nephritis of a saline so hypertonic as Hathorn, and he also forbids the use of all of these naturally carbonated waters in the hemorrhagic type of peptic ulcer, since carbonic acid gas congests the mucosa as well as the skin.

The research unit which the Federal loan provides for will be an impressive source of progress at Saratoga in the fields of metabolism and physiologic chemistry. The time has surely arrived for active cooperation of the profession in the future development of our great spa, with its efficacious therapy. In time, we shall see the creation there of a special type of scientific literature and of a library of hydrotherapeutics supplying all bibliographic needs for the workers in this field at Saratoga and elsewhere. Since there is an extensive European hydrotherapeutic literature this should be abstracted and annotated and the literature itself acquired as far as possible.

With adequate laboratory, clinical and therapeutic facilities (including a "cardiac golf course" and two new baths), with recreational (auditorium, music, swimming pools, tennis courts, gymnasium), hotel and sanitarium requirements met, with broad-gauged public health teaching in force, with a university clinic, fully staffed, in operation, with the institution of a Society of Clinical and Experimental Medicine, and with research fellowships properly endowed, the dreams of a great

genius in American medicine—Simon Baruch—will at last be realized.

ANALYSIS OF THE WATERS AT SARATOGA SPRINGS

HYPOTHETICAL COMBINATIONS	Hathorn No. 1	Hathorn No. 2	Hathorn No. 3	Coesa	Geyser
Ammonium chlorid	26.75	53.54	57.37	34.42	61.17
Lithium chlorid	23.30	65.26	56.00	27.00	27.00
Potassium chlorid	390.40	723.97	630.31	437.58	233.81
Sodium chlorid	3,851.99	11,290.17	9,478.44	5,967.45	2,511.61
Potassium bromid	22.50	120.00	80.00	31.50	32.00
Potassium iodid	1.00	1.60	1.40	1.75	1.60
Sodium sulphate	Trace	Trace	Trace	Trace	Trace
Sodium metaborate	Trace	Trace	Trace	Trace	Trace
Sodium nitrate	Trace	Trace	Trace	Trace	Trace
Sodium nitrite	Trace	Trace	Trace	Trace	Trace
Sodium bicarbonate ...	703.89	241.23	994.49	512.07	2,206.54
Calcium bicarbonate ...	2,201.87	3,962.24	3,664.02	3,467.52	1,877.09
Barium bicarbonate ...	20.30	46.83	19.62	27.22	Trace
Strontium bicarbonate..	Trace	Trace	Trace	Trace	Trace
Ferrous bicarbonate ...	9.55	9.38	7.00	13.40	23.15
Magnesium bicarbonate.	1,266.84	2,837.48	2,407.56	2,047.44	874.71
Alumina	2.31	15.80	24.00	1.59
Silica	9.60	9.20	9.00	10.00	6.60
Total solids	8,530.30	19,376.70	17,405.21	12,601.35	7,856.87

HYPOTHETICAL COMBINATIONS	Lincoln	Hayes	Karista	Old Red	State Seal
Ammonium chlorid	11.54	38.24	61.17	7.63	.015
Lithium chlorid	24.54	24.07	28.54	6.94	None
Potassium chloride	371.41	465.40	213.02	72.33	2.47
Sodium chlorid	3,099.78	5,941.82	3,109.42	869.04	.94
Potassium bromid	20.00	30.00	22.00	12.50	None
Potassium iodid	Trace	1.25	1.75	.50	None
Sodium sulphate	Trace	Trace	Trace	Trace	4.81
Magnesium sulphate	8.31
Sodium metaborate	Trace	Trace	Trace	Trace	None
Sodium nitrate	Trace	Trace	Trace	Trace	2.43
Sodium nitrite	Trace	Trace	Trace	Trace	Trace
Sodium bicarbonate ...	1,346.85	712.76	2,104.42	295.46	None
Calcium bicarbonate ...	2,020.67	2,849.13	1,774.23	1,100.94	108.65
Barium bicarbonate	14.73	30.88	14.95	10.04	None
Strontium bicarbonate..	Trace	Trace	Trace	Trace	None
Ferrous bicarbonate ...	78.04	10.82	19.62	22.29	Trace
Magnesium bicarbonate.	1,264.20	1,626.90	1,227.43	436.30	26.72
Alumina	3.97	.74	2.39	1.99	None
Silica	40.60	10.80	11.20	38.00	8.70
Total solids	8,296.24	11,742.81	8,590.34	2,873.96	163.045

NOTE.—Results in milligrams per liter. All the springs except the State Seal are supersaturated naturally with carbon dioxide gas under normal conditions.

State Seal is a sweet spring water, not carbonated. Geyser, Hathorn, Coesa and State Seal waters are bottled at the springs, unchanged in any way from the form in which they flow from the earth.

The Treatment of Peptic Ulcer

For more than fifty years able practitioners have been struggling with the problem of peptic ulcer, trying to find out why the stomach does not ordinarily digest itself, why acute ulcers heal and why chronic ones either fail to heal or else, when they do heal, tend to become active again. In a comprehensive review, with a full bibliography, Walter C. Alvarez, of the Mayo Clinic, discusses various aspects of this interesting subject (*American Journal of Surgery*, November, 1932, xviii, 207). He concludes by giving one hint in regard to treatment which has come from several of the men who during recent years have been studying experimental ulcer. Many laboratory workers discovered years ago that when in dogs they snipped out bits of gastric mucosa the defects healed rapidly. When Ferguson tried this in rabbits he found that some of the lesions were converted into chronic ulcers, and he assumed that this was due to the constant presence of rough food in the stomach. Other observers found a difference in the rate of healing of experimental ulcers depending on the smoothness or roughness of the diet, and on several occasions experimenters have lost dogs because a piece of celery or turnip poked a hole through the floor of an ulcer. In some cases hair swallowed by the animal has served to retard healing. As Mann and others have shown, when an ulcer begins to heal, the defect is covered by a layer of epithelium one cell deep. It does not take much rubbing to remove such a membrane, and it becomes obvious that whatever other qualities an ulcer diet should possess, at least it should be smooth and free from indigestible particles. Experimentation suggests that more work should be done with fats and oils in the treatment of ulcer. They have been used particularly by Glaessner and Hurst, but unfortunately they tend to produce nausea and hence there are limits to their use during the day. They might, however, be used at night when they are most needed to inhibit secretion.

—The Practitioner.

MEDICAL BOOK NEWS

Edited by WILLIAM HENRY DONNELLY, M.D.

All books for review and communications concerning Book News should be addressed to the Editor of this department at 1313 Bedford Avenue, Brooklyn, New York.

AUGUST, 1933

REVIEWS

Operative Surgery. Vol. VII

OPERATIVE SURGERY. Covering the Operative Technic Involved in the Operations of General and Special Surgery. By Warren S. Bickham, M.D., and Calvin M. Smyth, Jr., M.D. Volume VII. Philadelphia, W. B. Saunders Company [c. 1933]. 849 pages, illustrated. 8vo. Cloth, \$10.00.

This volume has been written to bring up to date the previous six volumes published eight years ago by the addition to each section of those operative procedures which have become established as a part of the armamentarium of the well-equipped surgeon. Particular stress has been laid upon the many advances in physiologic lines which are particularly applicable to the wide field of surgery. New operations have been included. Considerable attention has been given to fundamental basic subjects such as general conditions encountered in operations, operating room technique, various forms of anaesthesia and analgesia. Furthermore as stated before, the new material has been added to practically every division of operative surgery.

The excellence of the previous volumes has been maintained. There are seven hundred and sixty-five illustrations, well done, and there is appended a very voluminous general index to volumes one to seven. This volume is essential to bringing up to date the previous six volumes and for the newer knowledge concerning the subjects discussed in these volumes. The importance of a general index to all the volumes need not be emphasized. The volume is recommended to complete the general set. The operating surgeon will find much of interest and help in the present volume.

EMIL GOETSCH.

American and Canadian Hospitals

AMERICAN & CANADIAN HOSPITALS. Edited by James Clark Fifeild, with the cooperation of the American Hospital Association. Minneapolis, Minn., Midwest Publishers Company [c. 1933]. 1560 pages. 4to. Cloth, \$10.00.

This publication has an almost encyclopedic character, containing terse and clear facts about every possible official phase of public activity that may have a relation to hospitals. It contains a very comprehensive account of the subjects dealt with at the various annual conventions of the American Hospital Association during the thirty-five years of its existence. It describes the scope of the work of the Council on Medical Education and Hospitals of the American Medical Association, does similarly with the Canadian Medical Association, and has short but clear expositions on the work of the Catholic and Protestant hospital associations, as well as the Canadian nursing associations, and the nursing associations active in the United States. It includes a description of the work of the American Association of Hospital Social Workers, the Association of Record Librarians of North America, the American Occupational Therapy Association, and an appendix containing a not too long description of the Catholic sisterhoods in the hospital field, as well as the various important foundations in which hospital workers are interested.

The bulk of the book deals with a brief description of various hospitals in the United States and Canada, giving a brief history, a list of the departments it contains, and the officers of the institutions.

This is a book, or we should call it an encyclopedia, the need for which has been felt for many years by the hospital worker, whether hospital administrator or hospital staff member. It would have required a great deal of time for anyone to get together all this information, which is now so intelligently brought together under one cover.

BORIS FINGERHOOD.

Case Studies in the Psychopathology of Crime

CASE STUDIES IN THE PSYCHOPATHOLOGY OF CRIME. By Ben Karpman, M.D. Volume 1. Washington, Mimeoform Press [c. 1933]. 1026 pages. Large octavo. Cloth, \$12.00. (The sale of this book is restricted to members of the medical, legal, scientific and other professions having a direct and definite interest in medical and social problems.)

This is in many respects, a remarkable work. It is merely a record of the case histories of five criminally insane patients in St. Elizabeths Hospital, Washington, D. C., but the details of these five histories require over one thousand quarto pages for their telling. The author states in his preface that the present study is an attempt to gain an understanding of some of the problems of criminality by means of an intensive study of the lives of individual criminals, seeking particularly to uncover such psychogenetic factors as may be found by the criminal reactions proper. Each case report consists of a number of units; the anamnesis obtained from the patient at the time of his admission and during his stay in the hospital, including the physiological and psychological examination by other physicians. Patients are asked to write their own histories, and on the basis of the material obtained questionnaires are made out, the answers to which are then incorporated in the original and serve as a basis for another questionnaire. In addition to all this, there is added to the case history, observations of the patient by his fellow-inmates and letters written by the patient. Dr. Karpman feels that the work attempted here is going to meet with a great deal of criticism because so much of the information comes from the patient himself, is not verifiable and therefore not reliable. His answer is that it is in the main the material obtained from the patient himself that is of value in the treatment. If, for instance, the patient says that as a boy he suffered much anguish because of conditions in his home, it matters not, so far as his emotional reaction is concerned whether such a state of affairs has actually existed or not; it is sufficient that he thought and felt so; while the situation may have been real or entirely imaginary, there is no doubt that his own reaction to it has been real. In reading the autobiographies of these five patients whose cases have been studied with such detail, one is immediately impressed with one outstanding feature, the feats of memory shown by all of them in detailing events which had, in many instances, transpired ten to fifteen years previously; this is especially apparent in dealing with episodes in their sexual lives, which they recount with the greatest minutiae of detail and take apparent delight in their most salacious features. To anyone interested in criminal psychology, this work presents much of absorbing interest and reflects great credit upon St. Elizabeths for the splendid work they are doing in such intensive study of their cases of the criminally insane.

F. C. EASTMAN.

Neuzeitliche Diabetesfragen

NEUZEITLICHE DIABETESFRAGEN. Funktionelle Pathologie und Therapie. By Carl von Noorden. Berlin, Urban & Schwarzenberg, 1933. 56 pages. 12mo. Paper, RM. 2.40.

This small booklet of 56 pages is full of interesting data pertaining to the latest findings in the pathologic, physiologic and metabolic sphere of the diabetic patient. The author's view of the various forms of diet for the diabetic, as at present used by various eminent specialists in this field, is given freely and impressively; a splendid contribution to the latest literature on this subject.

L. KOEMPEL.

Clinical Physiology of the Eye

CLINICAL PHYSIOLOGY OF THE EYE. By Francis H. Adler, M.D. New York, The Macmillan Company, 1933. 406 pages, illustrated. 8vo. Cloth, \$5.00.

What could be more attractive to the inquiring mind than a well balanced blending of the physiology and related clinical phases of a problem? There is a certain refreshing air about physiology which the subject carries with it and yet this pleasing spirit is often obscured in our text books by a stilted and complex manner of presentation. Dr. Adler has succeeded in preserving that stimulating effect of physiology which we experienced on our first day in the lecture hall. This can be well appreciated by referring for instance to his chapter on visual acuity. If we were told that it was necessary to discourse on the irradiation of light in the retina we would doubtless not begin the chapter, but we read on and on with increasing interest until we have absorbed every aspect of the subject without the least fatigue. The author sustains our interest. Each chapter is followed by a carefully selected bibliography and there are specific references which have been referred to in the text.

Dr. Adler's contributions to numerous phases of ophthalmic physiology make one confident of opinions expressed.

The first American text book on Clinical Physiology of the Eye provides the beginner with a volume which he will place beside Whitnall's "Anatomy of the Human Orbit," and Cowan's "Ophthalmic Optics."

The reviewer cannot express himself too strongly in favor of this worthwhile volume.

JOHN N. EVANS.

Criteria for the Classification and Diagnosis of Heart Disease

CRITERIA FOR THE CLASSIFICATION AND DIAGNOSIS OF HEART DISEASE. By Joseph H. Bainton, M.D., Arthur C. DeGraff, M.D., Robert L. Levy, M.D., and Harold E. B. Pardee, M.D. Third Edition. New York, New York Tuberculosis and Health Association, 1932. 131 pages, illustrated. 12mo.

The third edition of this book has several additions and improvements over the two previous editions.

In the first place, readers will welcome an index which will facilitate ready reference. Second—there is an appendix which contains a chapter entitled "Guide to the Radiologic Diagnosis of Heart Disease," containing Hodges' and Eyster's prediction tables for the normal cardiac area and transverse diameter and excellent descriptions of the normal and diseased heart, especially as seen in the fluoroscope. There is also an excellent chapter entitled—"Criteria for the Interpretation of Electrocardiograms," which will do much to standardize the interpretation of these tracings.

The book has developed inadvertently into an excellent short treatise on the diagnosis of Heart Disease and justly deserves its universal popularity.

E. P. MAYNARD, JR.

Light Therapy

LIGHT THERAPY. By Frank H. Krusen, M.D. New York, Paul B. Hoeber, Inc., 1933. 186 pages, illustrated. 8vo. Cloth, \$3.50.

The progress of modern light therapy has been rapid. Dr. Krusen has caught the spirit of this advance and perfectly embodied it in his book. The description of the sources of artificial light is unusually complete and impartial, with the technical details presented in a simple style which is easily followed. Several points usually overlooked in works of this kind are carefully dealt with, the chapter on selection of therapeutic rays being an example of this.

The physiology and technique of administration of light are also well presented. Many excellent suggestions as to indications, dosage and methods of treatment are to be found throughout the various chapters.

The book is well printed and clearly illustrated, and can be highly recommended to the physical therapy aide as well as to the medical student and practitioner.

JEROME WEISS.

Outlines of Psychiatry

OUTLINES OF PSYCHIATRY. By William A. White, M.D. Thirtieth Edition. Washington, D. C., Nervous and Mental Disease Publishing Company, 1932. 468 pages, illustrated. 8vo. Cloth, \$4.00. (Nervous and Mental Disease Monograph Series No. 1.)

The author, in this 13th revision, has maintained the up-to-dateness of the work. The outstanding addition he has incorporated is the subject of the treatment of paresis by malaria. The historic introduction to the various conditions is an added feature in this edition.

As usual the book is divided into three parts. Part 1 is taken up with a general discussion of descriptive and genetic psychology, a classification of mental disorders and therapy. Various terms that are descriptive, such as delusion, hallucination and illusion, are defined.

In Part 2 the clinical disorders are discussed such as paranoia, and paranoid state, manic-depressive psychosis, dementia

precox and ending with idiocy and imbecility. Much prominence is given to Freud and the psychoanalytical school in interpreting symptomatology. The author fixates attention by interspersing case histories and personal experiences, in bringing out the essential features of the individual diseases.

Part 3 is given over to methods of examination, mental testing and history taking.

The book is highly recommended for use as a reference by all medical practitioners. Throughout its course original articles are mentioned. Especially to be emphasized is the fact that the author has brought out the early symptoms of each disease in line with the present trend of applying psychiatric principles to private practice and general hospital work.

STANLEY S. LAMM.

The Medical Secretary

THE MEDICAL SECRETARY. By Minnie Genevieve Morse. New York, The Macmillan Company, 1933. 162 pages. 16mo. Cloth, \$1.50.

This book is a presentation of the varied duties the secretary-nurse is called upon to perform. The author, whose experience in the field of medical secretarial work has extended over ten years, has treated comprehensively such subjects as qualifications for medical secretarial work; the personality of the medical secretary; office and patient; medical correspondence, bills, and reports; case records; medical indexing and filing; medical research; the preparation of medical manuscripts; and medical terminology.

The book should find value as a ready reference work among secretaries and also among those doctors who handle their own correspondence, bills, and the preparation of their medical manuscripts.

In suggesting a style for a bibliography of magazine articles, the author has not presented the standard form in general use, which includes the volume number. As most medical journals are eventually bound, the presence of the volume number in the bibliography makes for easy reference.

The section on medical terminology is especially noteworthy, containing the definitions of many frequently used medical terms.

There is a useful bibliography, including texts on English grammar, filing, anatomy and physiology, applied psychology, psychiatry, and secretarial studies.

The comprehensive index will be of value to the busy secretary.

FREDERIC DAMRAU.

Diagnostic Medical Pratique

DIAGNOSTIC MEDICAL PRATIQUE. By Paul Halbron, M.D. Paris, Felix Alcan, 1932. 622 pages. 12mo. Cloth, 50 francs.

This work is what we would call in this country a compendium of differential diagnosis. All the common symptoms and diseases are arranged alphabetically and to each is devoted one or more paragraphs of short description and facts in the differential diagnosis.

The work is intended not as a reference book for study but as a hand-book for general practitioners when confronted by diagnostic problems, at the bedside or in the office.

The quality of the medical writing is excellent and for that reason the book can be recommended as a ready reference for students and the busy practitioner.

E. P. MAYNARD, JR.

The Practice of Birth Control

THE PRACTICE OF BIRTH CONTROL. By Enid Charles, Ph.D. London, Williams & Norgate, Ltd., 1932. 190 pages. 8vo. Cloth, 10/6.

This volume has been prepared from a statistical study of the birth control experiences of a thousand women.

The reliability of the various contraceptive measures prove or disprove their reliability if one would judge from statistics alone. We must realize that this subject is still controversial and the value of the book as a book is purely a matter of speculation. The question of contraceptives, "if, when, and how," in our opinion still remains the personal problem that it has always been, and the final disposition of each case should be left to the physician and to the intimacies of the physician's office.

SAMUEL ZWERLING.

METHODOLOGY IN THE FORMULATION OF MENTAL HYGIENE CASE STUDIES. By Frederick L. Patry, M.D. Albany, N. Y., University of the State of New York Press, 1933. 73 pages. 8vo. Paper. (University of the State of New York. State Education Department.)

Next to the parents, the school personified by the teacher exerts its greatest influence upon the child. It is important therefore, when a teacher meets a mal-adjusted child she should recognize the fact that the child's behavior is not an isolated entity but that it is usually an expression of some underlying factors of which the child himself is not cognizant.

With this purpose in view, the author prepared this pamphlet,

not with the idea of making school teachers psychiatrists but to make them "more psychiatric and mental hygiene minded." This is accomplished by presenting case studies of mal-adjusted school children prepared by teachers, normal school student teachers and by psychiatrists.

In all 16 case studies are presented. Naturally the case studies by the psychiatrist are more complete and instructive. Of 14 cases in which the I. Q. has been determined, 13 cases are frank mental defectives or belong to the borderline group. One wonders why the author has selected such a group of children to illustrate what are supposed to be "various types of mal-adjusted school children." The pure psychiatric approach in such cases is certainly limited, and besides the uninitiated may reach the erroneous conclusion that the cause of mal-adjustment in school children is mental retardation.

I. W. KARLIN.

Dietetics for the Clinician

DIETETICS FOR THE CLINICIAN. By Milton A. Bridges, M.D. Philadelphia, Lea & Febiger, 1933. 666 pages. 8vo. Cloth, \$6.50.

A valuable addition has been made in this volume to the library of the physician on the use of diets in medicine. The author has engaged the aid of his colleagues at the New York Post-Graduate Hospital in writing chapters on dietetics as applied to various medical and surgical specialties in medicine.

An interesting feature of this book is a classification and listing of foods, rich and poor in the constituents necessary to take into consideration in planning a diet for any disease. Thus one readily finds lists of foods highest in COH, protein, fats, salts, vitamins, uric acid, calcium cholesterol, copper, phosphorus, potassium, cellulose, iodine, iron, and water. Similarly

there are lists of foods lowest in the above ingredients.

The book also contains a good chapter on cookery.

Finally the author includes a number of chapters in which he discusses the diseases in which diets play an important part in the therapeutic regimen.

In the appendix will be found practical recipes, height and weight tables and a large list of classified food tables.

The book is recommended as a text full of dieto-therapeutic suggestions for the practicing physician.

WILLIAM S. COLLENS.

The Tides of Life

THE TIDES OF LIFE. The Endocrine Glands in Bodily Adjustment. By R. G. Hoskins, M.D. New York, W. W. Norton & Company [c. 1933]. 352 pages, illustrated. 8vo. Cloth, \$3.50.

The lay public has long awaited an authoritative presentation of the facts about Endocrinology. It is now possible for it to obtain the present day knowledge on this subject, shorn of its fads and fancies with, however, the limitations that come with our ever-changing concepts of this intricate and fascinating branch of medicine.

Dr. Hoskins comes well prepared to write this type of book. He is one of the well-known pioneers in the field, was formerly a Professor of Physiology and has been Editor of *Endocrinology* for almost 20 years. He is in a position to separate the chaff from the wheat and has succeeded in writing what is probably the best book for the laity.

The book can well be read by the general practitioner with a great deal of profit.

M. B. GORDON.

BOOKS RECEIVED

Books received for review are acknowledged promptly in this column; we assume no other obligation in return for the courtesy of those sending us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.

Books Received

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, etc. Volume 2, 43rd Series, 1933. Edited by Louis Hamman, M.D. Philadelphia, J. B. Lippincott Company [c. 1933]. 314 pages, illustrated. 8vo. Cloth, \$3.00.

DIE HAUT- UND GESCHLECHTSKRANKHEITEN. Hrsg. von Prof. Dr. Leopold Arzt und Prof. Dr. Karl Zieler. Lieferung 3, 176 pages, illustrated. Paper, RM. 8.20. Lieferung 4, 288 pages, illustrated. Paper, RM. 5.30. Berlin & Wien, 8 vo. Urban & Schwarzenberg, 1933.

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Contemporary Progress

(Concluded from page 252)

Obstetrics

Anterior Pituitary Luteinizing Hormone in Threatened Abortion

J. T. Witherspoon (*New Orleans Medical and Surgical Journal*, 85:822, May, 1933) reports the use of anterior pituitary luteinizing hormone in the treatment of 12 cases of threatened abortion. This therapy was based on the theory that the action of the corpus luteum hormone is not absolutely necessary for the continuance of pregnancy after placentation has taken place, but that its influence does persist in the early months of pregnancy. Its action does not remain on an even level, but shows a certain rhythm, somewhat similar to that of the normal menstrual cycle. At the time of the "would be menstrual periods," the influence of this hormone is diminished and an abortion is most likely to occur. At such times, therefore, the administration of corpus luteum hormone would tend to prevent threatened abortion. Since, however, the corpus luteum hormone *per se* is not available commercially, the author employed anterior pituitary luteinizing hormone in his cases. In these cases, the patients were in the early months of pregnancy and developed symptoms of pelvic cramps, uterine bleeding, and two-finger dilatation of the cervical os. The anterior pituitary hormone—follicle-in was given daily in increasing doses, from 0.1 to 0.2 c.c. to 0.5 c.c., until the uterine flow was checked. Six of these patients aborted in the hospital after five days or more of treatment; 6 were discharged free of symptoms, but advised to remain in bed for seven to ten days; but 4 of these

aborted later shortly after getting up. In 2 of these cases the fetus was dead, a fact that suggests that the prevention of threatened abortion in cases advanced to the stage described is not always desirable. In a control group of 12 cases advanced to the same stage and not given any hormone therapy, all aborted while in the hospital on the average of a little over three days after admission. The author suggests that the administration of anterior pituitary luteinizing hormone might prove of greater value in cases of habitual abortion or in cases of threatened abortion that had not advanced sufficiently to disturb the viability of the fetus. It is, he believes, a rational therapy in such cases.

Death of the Fetus in Pregnancy

J. S. Lawrence (*American Journal of Obstetrics and Gynecology*, 25:633, May, 1933) concludes from studies of still births and neonatal deaths that there is a type of intrauterine death of the fetus that is due to fetal starvation alone; and that this starvation is caused by the difficulty that the increasing amount of nutriment required by the growing fetus meets in filtering through placentas of a certain type. In cases in which fetal death is due to starvation of this type there are definite clinical manifestations of "fetal distress" prior to the death of the fetus. These are abnormalities of the fetal movements, i.e., unusually lively movements at unusual times; excessive movements, described by some women as a "storm" at any time; changes in the fetal heart beat. Heart rates above 150 or below 120 and irregularities in the rhythm indicate fetal distress. In cases that have manifested fetal distress during pregnancy the placenta is characterized by an increase of connective tissue and a coarsening of the maternal and

fetal elements. Carbohydrates can pass through such a placenta, however, if given in sufficient amounts in proper form. For the immediate relief of fetal distress, glucose is given intravenously; subsequently a high carbohydrate diet must be maintained throughout the pregnancy. If women are instructed to pay careful attention to any abnormality of the fetal movements and if repeated fetal heart counts are made, fetal distress can often be diagnosed in such cases in time to prevent intrauterine death by means of such carbohydrate therapy.

Recurrent Ectopic Pregnancy

A. P. Jones (*American Journal of Surgery*, 20:633, June, 1933) reports that 2 cases of repeated tubal pregnancy with rupture were admitted to Jefferson Hospital, Roanoke, Va., within a week. A review of the 89 recorded cases of tubal pregnancy at this hospital showed that there had been one other recurrence in this series, making a percentage of 3.3 percent. In 13 of the 89 cases, removal of both tubes or hysterectomy had been done at the time of operation for the tubal pregnancy, reducing the number of patients who were capable of subsequent pregnancy to 76. A questionnaire in regard to such subsequent pregnancies sent to these 76 women was answered by only 36. But of these 36, 12 had been delivered of normal children and 3 had had miscarriages. As one third of these patients who were traced had normal pregnancies, it is evident that the percentage of normal pregnancies following tubal pregnancy is much greater than the percentage of repeated tubal pregnancies. On the basis of these findings, and in agreement with the majority of authors who have reported cases of repeated tubal pregnancy, the author concludes that in the absence of gross disease of the uninvolved tube, it should not be removed at the time of operation for a tubal pregnancy.

Severe Albuminuria with Edema in Pregnancy

J. Voron and H. Pigeaud (*Gynécologie et obstétrique*, 27:289, April, 1933) report that in three years they have observed 6 cases of albuminuria in pregnant women with edema and chloride retention, but without nitrogen retention or any marked rise in blood pressure. None of these patients showed any evidence of chronic nephritis; 2 had had albuminuria in a previous pregnancy. One of these patients developed eclampsia, 2 others typical symptoms of pre-eclamptic toxemia. All improved rapidly after delivery and were discharged in good condition with no edema, and little or no albuminuria. Although chloride retention apparently predisposed some of these patients to eclamptic toxemia, the symptoms were less severe than in cases with albuminuria associated with nitrogen retention and increased blood pressure. Four of these patients were delivered prematurely of living infants that were much below normal weight, but survived and were in good health on discharge from the hospital. In 2 cases delivered at term, the infants were still-born. Premature delivery in these cases is evidently more favorable for the infant than prolongation of the pregnancy to term.

Cancer

(Concluded from page 248)

cover over the raw surface so that after a time the eroded area is covered by columnar epithelium from the cervical canal, constituting what is commonly known as "cervical erosion." Should the cervix be definitely lacerated, especially if bilaterally lacerated, it tends to become everted, partly by muscular action and partly as the result of inflammatory infiltration, so that the congested and thick endocervical mucosa is exposed to view, giving the familiar ectropion or eversion of the endocervical mucosa.

The transition from erosion to neoplasm has not been demonstrated as yet; but that this hypertrophied, over-stimulated epithelium may be the starting point of malignancy seems quite probable.

Cervical erosions vary greatly in appearance; the smooth simple erosions in which the glands are few; the follicular erosions in which the glands are numerous and dilated; the papillary type in which numerous papillae project upward between the glands and in

some cases there is a real ulcer with destruction of tissue present. Ulcerative erosion differs only from the proliferative type in that the primary destructive agent is of greater virulence, that is, relative to the patient's powers of resistance. In many cases the differentiation between an erosion and malignancy cannot possibly be made by inspection and palpation, often the most suspicious appearing lesions proving benign, and conversely, what appear simple lesions prove to be malignant. Hence in all but the simplest lesions it is futile even to hazard an opinion when the diagnosis can easily and definitely be established by doing a biopsy, which is usually a simple office procedure.

The treatment of these cervical lesions varies with the type and extent of the lesion, presence of lacerations, age of the patient, etc.

In chronic cervicitis with little or no laceration, in which discharge and erosion are the chief lesions, cauterization is the ideal treatment. Such lesions are readily cured by this method; but when extensive lacerations are present, with ectropion and an open cervix, reinfection and recurrence are very common. Hence operation is advisable when lacerations of more than moderate extent are present, not only as a relief measure, but as a definite prophylactic against the development of cancer.

In cervixes with long standing infection, hypertrophied, with deep seated infection and marked cyst formation, cauterization is not sufficient and operation should be resorted to. Here the Sturmdorf operation, coning out the infected area, is the ideal procedure. After the childbearing period, amputation of the cervix is as effective; but is contraindicated before the menopause, except under special circumstances.

For the simpler lacerations, trachelorrhaphy, removing the scar tissue and restoring the normal contour of the cervix, is effective. In the uterine fundus, precancerous lesions are chronic irritations produced by polypi and submucous fibroids; carcinoma coexists in about 4% of fibromyomata. Fibromyomata also undergo sarcomatous degeneration in about 2%. Hence the removal of rather small fibroids, even the symptomless ones, may be warranted as a prophylactic measure in the prevention of cancer.

Purpura Haemorrhagica in Congenital Syphilis Following Arspenamine

J. V. BICKFORD and R. C. TILGHMAN, Baltimore (*Journal A. M. A.*, June 24, 1933), report two cases of hemorrhagic purpura in children with congenital syphilis following the use of neoarsphenamine. In both of their patients, no familial tendencies to bleeding could be discovered and no hemorrhagic tendencies in the patients themselves had ever been observed. In one the reaction was immediate and severe with the manifestations of circulatory collapse. In the other patient the reaction was more prolonged and more gradual in onset and less severe. The blood pictures and the clinical pictures with petechiae and ecchymoses, involving both the skin and the mucous membrane, were similar, and complete recovery occurred in both patients. The treatment of one of the patients was in the main that of shock; e. g., warmth, epinephrine, morphine, intravenous dextrose, and blood transfusions to combat further bleeding. In the other one, treatment was unnecessary and the recovery was entirely spontaneous. Arsenicals of any kind should be avoided in further antisyphilitic treatment of these patients. The mechanism by which abnormal blood pictures are produced by injections of the arsphenamine derivatives is not clearly understood. No conclusive evidence seems available at present to decide the etiology of postarsphenamine blood dyscrasias in syphilitic patients. The authors report these two cases so that eventually sufficient data may be studied to aid in the final solution of the problem.

